

American Aviation

MANAGEMENT

ENGINEERING

OPERATIONS

MAINTENANCE

EQUIPMENT



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MINNEAPOLIS
Honeywell

Aeronautical Controls

Congress's action in voting only \$21.1 billion for the Air Force makes the 143-wing goal by mid-1954 completely out of the question, barring all-out mobilization. If Congress had appropriated \$24.9 billion, some officials feel the goal could have been attained by January, 1955.

•

While refusing airline requests for rapid-write-off certificates for transport aircraft, which would cut amortization period from seven to five years, the Defense Production Administration has approved accelerated amortization of railroad cars, permitting write-offs in five years on equipment with a useful life of 25-30 years.

•

Supersonic jet transports are definitely in the future of commercial aviation, according to Lockheed's Hall L. Hibbard, and they will bring with them fuselage-carried fuel to permit the thin-wing designs required for such speeds.

•

Steel shortage in the aircraft industry is likely within a few weeks time, with parts manufacturers already feeling the pinch. While steel output is at about 13% of normal, and this figure matches defense requirements, aircraft quality alloys are not at their minimum-requirements level.

•

First break in apparently strong Government resistance to aiding the purchase of new aircraft by local service airlines came last week with the Post Office announcement that it would not object to CAB's underwriting Pioneer Air Lines' Martin 2-0-2 purchase.

•

Something new in labor relations: IAM workers at Boeing-Seattle are being asked to rate their supervisors by the union local. Questionnaire asks whether supervisors abide by the contract, show favoritism, keep themselves available, visit excessively, help deserving employees to better themselves, etc.

•

Independent European airline operators are flocking to the International Air Transport Association fold. Three major French carriers have been accepted by IATA, and several British independents are now negotiating to join.

•

Almost 20% of the aircraft work force is now made up of women, according to the Labor Department, but this is still appreciably under the World War II record; in 1943, women workers made up 40% of all people on aircraft payrolls.

•

Possibility that transport-type helicopters will be available for commercial operations in considerable quantity by early 1955 is being suggested by Bell Aircraft Corp., on the basis that military demands for helicopters will free some production facilities by that date.

•

Shortage of engineers in the aircraft industry will continue for several years as the total number of engineering graduates continues to decline. Trend: 50,000 in 1950, 38,000 in 1951, 28,000 in 1952, only about 19,000 in 1953, and 12-17,000 in 1954.

The Washington View

Jets Don't Vote

If any progress is to be made on the development of an American jet transport within the next six months, it will have to be made by the manufacturers themselves. Congress ignored Britain's lead in jet airliners on two counts—refusal to appropriate about \$1.4 million to CAA for testing of embryonic jet passenger ships, and lack of action on a bill to more or less underwrite the construction and development of such planes.

Congress cannot be blamed too much for failing to act on the latter. It was only during the week before adjournment that Sen. Edwin C. Johnson (D., Colo.) and Rep. Carl Hinshaw (R., Calif.) introduced bills patterned after the proposal of CAB chairman Donald W. Nyrop to lend up to \$15 million to each qualified builder and lessen the debt by \$1 million for each jet transport sold.

But the legislators deserve a certain amount of condemnation for not approving funds for CAA to carry out airworthiness tests on the Avro Jetliner, North American B-45, and Douglas F3D. They authorized the program previously but have not yet provided the money to carry it out.

The need for "economy"—especially in an election year—is evident, but sooner or later similar sums will have to be provided to enable CAA agents to determine whether American jet transports are airworthy. The action of the House-Senate conferees in striking out a Senate-voted sum of \$1,383,000 for jet-prototype testing was not the economy it purported to be.

Small Business and the Dollar

Ever since Korea, procurement officials in the Armed Services have been hearing that "small business is not getting enough business" from the military. This theme has been repeated so often by Small Defense Plants Administrator Telford Taylor and others that it has almost been accepted as the truth.

Earlier this month, for example, the Senate Small Business Committee pointed out that small concerns, which received 24.5% of prime military contracts in the year before Korea, dropped to 20.9% in fiscal 1951 and to 18.4% during the first nine months of fiscal 1952. These figures are undoubtedly true enough, but they tell only part of the story.

During the present mobilization buildup, most prime contracts simply cannot be handled by firms with fewer than 500 workers. Yet small business ends up with far more than half of the total military procurement dollar. The difference, of course, is made up by sub-contracts from big business. The aircraft industry, for example, now has about \$20 billion in backlogged prime contracts. Reports by

individual companies show that they are subcontracting 40-60%, with small firms getting a good part of the sub-contracted work.

Clerk Fights Union Shop

The issue of the union shop, currently a big stumbling-block on the road toward peace in the aircraft, airline and other industries, is in for a court battle as a result of a suit filed by a Pan American World Airways clerk in Miami. First round was lost when a Florida circuit court dismissed the case for lack of jurisdiction, but the Pan Am worker said she will appeal it to the Florida Supreme Court.

If the suit should ultimately be decided in favor of the clerk, it will undoubtedly be carried to the U. S. Supreme Court because where the union shop has been won, employers agreed to grant it only after long battles. The labor unions are certain to fight for it.

Steel Strike Pinches

The same union shop issue is apparently the main one holding up an accord in the steel industry. Meanwhile, the aircraft industry is getting alarmed about the gradually increasing shortage of certain types of aircraft steel.

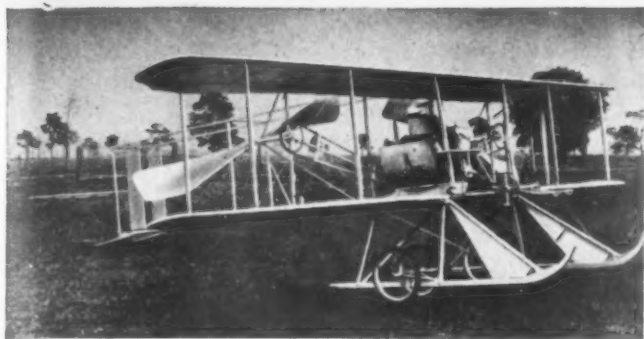
Larger aircraft firms generally have enough steel to get by for several weeks to come, but many parts makers are almost ready to feel the pinch. Some gaps have started to appear in the inventories of warehouses which provide aircraft quality steel.

An NPA program designed to take care of this situation apparently is not going to work out. Right after the steel strike began in earnest, NPA gave certain priority holders (including plane builders with the A-1 priority symbol) the right to bump orders on the books of steel firms still in production. About 13% of normal steel production is still being turned out and the military takes about that amount.

But the steel companies which have not been shut down cannot provide all the types of steel, especially aircraft quality steel, required by defense contractors. Another plan, one to reopen certain steel mills to maintain defense production, has also collapsed despite the fact that the CIO-steelworkers and the steel industry agreed to it in principle. The scheme proved unworkable.

The Pentagon, defense mobilizers, and President Truman are still taking no action to get the mills in operation again, in spite of the fact that aircraft output is being threatened. With each passing day the steel situation as far as the aircraft industry is concerned will get gradually worse, until one day in the not very distant future plane production will virtually halt.

... Robert M. Loebelson



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American Aviation

SERVING THE INDUSTRY SINCE 1937



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other publications

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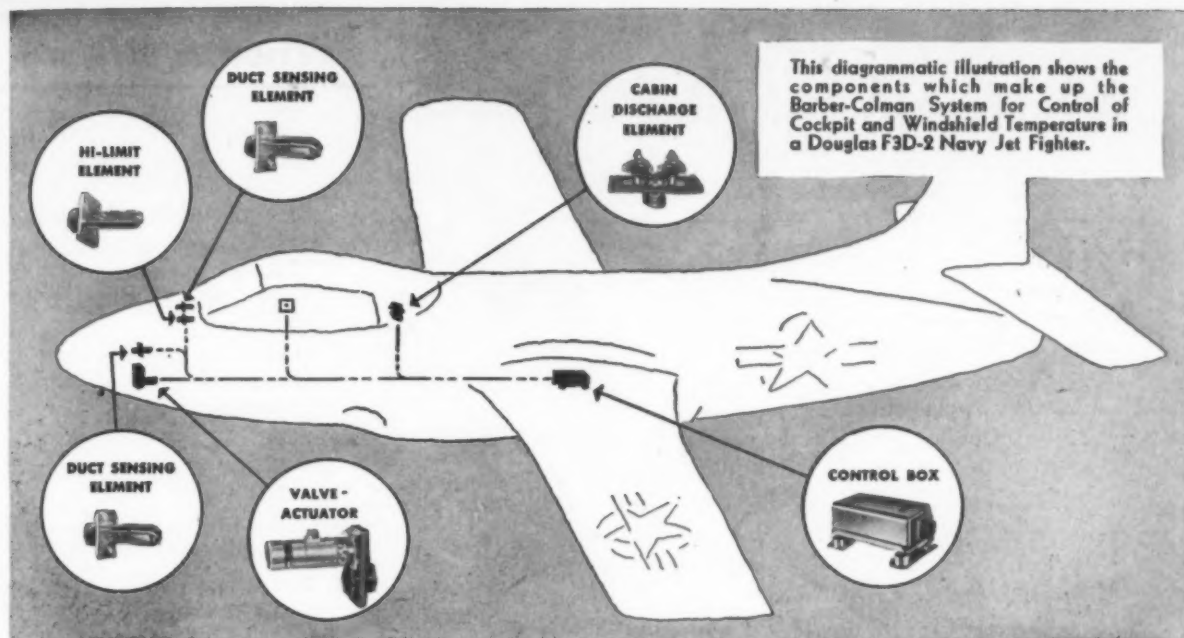
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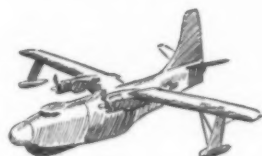
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Meet Your Editors



Hunter

HERE'S FRED HUNTER, AMERICAN AVIATION's West Coast editor. Fred's an industry "old timer" with combined industry-AAP experience going back 15 years.

There are all sorts of ways a man can enter the aviation industry. You'd never suspect Fred Hunter of getting in the way he did, because he's the mildest-mannered looking man west of the Potomac.

Seems that Fred originally covered the news beats as a reporter for the daily papers in Omaha and out Sacramento way in the early Thirties. He wrote news stories covering everything from plain murder and rape to quiet business club luncheon affairs.

Then one day Fred took his first plane ride. This turned out to be a rousing cops-and-robbers chase after bandits who were high-tailing it over Nebraskan highways in a souped-up car.

Fred never caught up with the thieves. He was marooned in a cornfield after the plane force-landed him far from the capture scene. But Fred got his story.

This experience aroused Fred's interest in air transportation, and he took a position with United Air Lines in a Chicago publicity office of that company. Later on, Bob Johnson (now v.p. and assistant to the president of UAL) appointed Fred eastern publicity director in New York.

Fred had spent five years in this job when he was offered the position as West Coast Editor with AMERICAN AVIATION. Being an avid Californian by nature, he eagerly accepted (in 1945) and has been with us ever since, covering the doings in firms like Convair, Lockheed, Douglas, North American, and other western companies.

When Fred's off duty, you'll find him in what he calls a "farm-style abode" out Van Nuys way, just within the Los Angeles city limits. Here he enjoys his Number One Hobby, which consists of sitting under an orange tree, watching wife Esther working in a very lush-looking garden.

* * *

Fred knows, from long and intimate experience, how important AMERICAN AVIATION's services can be to any man holding down an important job in the field. As a regular reader you also undoubtedly realize the usefulness of AMERICAN AVIATION to others.

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When & Where

- July 25-26—Parks College of Aeronautical Technology of St. Louis University, Silver Anniversary Homecoming, East St. Louis, Ill.
- July 30-31—University Aviation Association, 5th Annual Meeting, Ball State Teachers College, Muncie, Ind.
- Aug. 11-13—Society of Automotive Engineers, West Coast Meeting, San Francisco.
- Aug. 28-30—National Aeronautic Association, Annual Meeting, Fort Shelby Hotel, Detroit.
- Aug. 28-31—Air Force Association, Annual Convention, Detroit.
- Aug. 30-Sept. 1—5th Annual Int'l. Aviation Exposition, sponsored by Aero Club of Michigan, Detroit-Wayne Major Airport.
- Sept. 1-8—1952 Int'l. Symposium on Combustion, Mass. Institute of Technology, Cambridge, Mass.
- Sept. 8-10—3rd National Standardization Conference, sponsored by American Standards Assn., Museum of Science & Industry, Chicago.
- Sept. 8-12—Instrument Society of America, 6th National Meeting, Cleveland, Ohio.
- Sept. 29-Oct. 1—National Electronics Conference, Sheraton Hotel, Chicago.
- Sept. 30-Oct. 2—Aircraft Spark Plug & Ignition Conference, Champion Spark Plug Company, Toledo, Ohio.

International

- Aug. 19—ICAO, Aeronautical Information Services (AIS), 1st Session, Montreal.
- Aug. 20-28—8th Int'l Congress on Theoretical & Applied Mechanics, Istanbul.
- Sept. 1-7—Society of British Aircraft Constructors, Annual Display, Farnborough, England.
- Sept. 15-19—IATA, Eighth Annual General Meeting, Geneva.
- Sept. 16—ICAO, Statistics Division (STA), 2nd Session, Montreal.
- Sept. 19—Conference of the Revision of Rome Convention (under auspices of ICAO), Rome.



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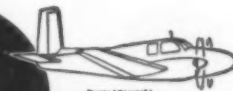
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Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

CONGRATULATIONS

To The Editor:

We have just received the issue of your magazine of April 28 and we want to congratulate you on the enormous amount of research which has been compiled into a very readable form.

You must understand that being so far away from the hub of the industry, it is to us of great advantage to get similar news, even more so as our trends are more or less the same as experienced in the U. S. A.

Congratulations once again on this fine effort.

L. MEES

Manager-Sales & Traffic Dept.
Garuda Indonesian Airways N. V.
Djakarta, Indonesia

INACCURACY

To the Editor:

Several of our Flight Engineers have brought to my attention an inaccuracy in your June 23, 1952, edition in your "News at Deadline" column.

First, you referred to the Association by the incorrect name; secondly, the Flight Engineers did not reject mediation but refused a proffer of arbitration following the fiasco in the Eastern Airlines case earlier this year.

I think these points are well taken by the membership and I think I am bound to bring them to your attention in the interest of accuracy and recording.

WILLIAM D. KENT

President
Flight Engineers' International
Association
Mineola, L. I., N. Y.

MORE ON MEDIATION

To the Editor:

With reference to your item "TWA Mediation Fails" in the "News at Deadline" section of your June 23 issue.

We would like to bring the following to your attention. On June 4 and 5, 1952 meetings were held with the Mediation Board in their Washington office. Inasmuch as TWA had applied for mediation, it was assumed that they were prepared and ready to bargain on open contract items. It was apparent at this time that this was only a token meeting and that TWA had not changed their position in regard to open items on wages and working conditions.

In the final meeting, the Board conferred with both the association and the company in a joint meeting and they expressed their feeling, that they had used their best efforts to bring about an amicable settlement through normal conference procedures, but that they had been unsuccessful and would now proffer arbitration to both parties.

Our Mediation Case No. A-3968 was closed June 6, 1952. At the present time the FEIA-TWA Chapter is in the thirty (30) day status quo period.

We feel that any publication should be supplied with true and unbiased facts in order that their readers receive correct information.

In view of the above facts the TWA Chapter FEIA invites the editors of all publications to feel free to call upon us for any information that we may be able to supply.

WILLIAM DOTY

Secretary
FEIA-TWA Chapter
Kansas City, Missouri

Obituaries

NELSON S. TALBOTT

Brigadier General Nelson S. Talbott, 60, USAF ret., a director of Trans World Airlines, died at his home in Dayton, Ohio, on July 6.

In addition to his 16-year TWA post, he held the position of Deputy Director of Procurement and Production for the Air Material Command at Wright-Patterson Air Force Base, having retired only last month, and had held many important air materiel procurement posts in both World Wars.

General Talbott was also chairman of the board of Dayton Aircraft Products. He was scheduled to receive the Legion of Merit later this month and an honor review at Wright-Patterson AFB.

He is survived by his wife, Mrs. Elizabeth Talbott, and three sons.

CAPT. JOSEPH BAILEY

Captain Joseph Bailey, 46, chief pilot of National Airlines, died at his home in Miami Springs, Florida, on July 6.

Having joined National in 1936, he was one of the carrier's oldest employees. He began flying in 1927 and had logged 20,000 hours. Along with NAL president C. T. Baker in a DC-6, he established a Santa Monica-Miami record in 1946.

He is survived by his wife, Ronnie, and one son.

NORBERT JOHN ROY

Norbert John Roy, 50, chief of CAA's air route traffic control center at LaGuardia Field, died of a heart attack on July 2 after swimming in Lake Erie near Port Colborne, Ont.

He had worked with Buffalo Aeronautical Corp. and Kenny Flying Service as pilot and instructor prior to joining CAA in 1950.

JULY 21, 1952



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This is the third type of Sikorsky helicopter to be used by the Marine Corps which has pioneered many revolutionary combat tactics with helicopters in actual combat in Korea.

This type, also in service with the U. S. Army Field Forces, is a four-place development of the earlier Sikorsky S-52, holder of the world's speed and altitude records.

In service with the Marine Corps, the new HO5S helicopter is expected to be of great value as an observation-liaison aircraft and for evacuation of wounded and trapped men.

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AMERICAN AVIATION

Editorial

ATA's Problem

Following his sudden walkout at the last meeting of the board of directors of the Air Transport Association, Capt. Eddie V. Rickenbacker has filed the necessary six months' notice in writing of the resignation of Eastern Air Lines from ATA, in accordance with his announced intention on the day of the walkout.

Whether Eastern will actually withdraw from ATA at the end of the year is something that only time will tell, but the resignation of one of the "Big Four" puts both the airline and the association in awkward situations. Because of the multi-

tude of interline agreements and resolutions and many other cases of mutual interdependence, Eastern should not be outside of ATA, and ATA should not be without Eastern.

But it is the cause of the ruckus, much more than the effect, which should give serious concern to the airlines which have the dominant voice in ATA.

Capt. Rickenbacker walked out because he said the ATA was in violation of both letter and spirit of the employment agreement with Robert Ramspeck as ATA vice president. At the request of President Truman, Mr. Ramspeck took leave from ATA early last year to become chairman of the Civil Service Commission. When his temporary 15-months' leave expired in June of this year, Mr. Ramspeck served notice that he would like to come back to ATA. He wanted to be executive vice president, and then president, in accordance with promises he said had been made when he first joined ATA in 1945.

No Secret

It has been no secret that a number of airlines, especially American, have been opposed to Mr. Ramspeck as president or executive vice president. The whole issue came to a grand climax at ATA's recent board meeting, as a result of which Mr. Ramspeck decided to leave ATA permanently and Capt. Rickenbacker walked out.

The whole incident got washed in the daily press, with unfavorable undertones, and has been pretty unfortunate all around.

We are not concerned with the Ramspeck episode, since that is now past history. But we do feel that the incident provides a lesson for the future and is likely to occur again unless ATA is operated under commonly accepted business procedures.

What the airline presidents seem to be seeking constantly is a "big name" or a "front man." In our opinion what the airlines really need is an executive head of ATA who has been picked from the industry itself and who has bucked up against industry problems and personalities over an extended period of time. The kind of man the airline heads dream about to lend prestige, influence, and power

to ATA actually doesn't exist—or exists very rarely. Perhaps more important, the industry is never likely to give an outsider free reign, or to accept freely his advice, once the honeymoon is over.

ATA is a trade association pure and simple, and its trade association functions require skilled administration by a graduate from the industry, or by someone who has been intimately concerned with the industry. In addition ATA should be a public relations spokesman and a legislative representative for the industry.

It seems to us that in trying to obtain an executive head for the organization the airlines have put the public relations and legislative aspects uppermost, instead of relegating them to their proper functions as management responsibilities. Too much emphasis is placed on seeking an individual, and building an organization around him, instead of dealing with specific functions and then finding men with qualifications to fulfill those clear-cut functions. All functions of ATA are actually those of a business. Public relations is a business, not a matter of "big names."

Biggest Problem

Perhaps the biggest single problem facing the airline heads, judging from past experience, is not so much finding what appears to be the ideal man, but getting rid of him when he fails to make the grade. In this latter matter the airline heads get themselves into complications which they wouldn't dream of getting involved in with their own airline companies.

Sitting as we do on the sidelines, it seems to us that the ATA problem is relatively simple. First the airlines should carefully outline all of ATA's functions and its reasons for being and its objectives, in the same way that the duties of a vice president in charge of operations are clearly defined. Then establish the job classifications and seek men to fill the jobs.

"So long as ATA revolves around a personality or an individual there will be complications. ATA is big enough to warrant an experienced administrator as executive head. If a "front man" is needed, let him function under the executive head or as chairman of the board where he can be removed without complications or embarrassment.

It is most regrettable that the Ramspeck episode occurred when it did. The airlines had been moving slowly but steadily toward a comprehensive public relations program. It is sorely needed. But the project is now delayed again.

Rivalry, personalities, friction, and conflicts of all kinds are as natural as rain in the airline industry. Yet the industry needs a strong trade association. The solution is the kind of an ATA management setup in which rivalries and personalities will not come into play as prominently as they do now when the airline presidents try to run both their own airlines and a trade association too.

. . . WAYNE W. PARRISH

B.F. Goodrich



Again — Boeing lands newest ship on B. F. Goodrich wheels, brakes

LANDING GEAR on the B-52 Strato-fortress has to bring in safely one of the U. S. Air Force's largest bombers. Boeing does it with eight wheels in a bicycle arrangement. The same B. F. Goodrich 60,000 lb. wheel proved on the B-47 is used. This wheel has taken test loads up to 300,000 lbs.

The brakes are also B. F. Goodrich. This Expander Tube brake has a new kind of brake block. No rivets are used. The brake lining is cemented onto a light magnesium shoe. The braking action applies equal pressure over the

full circle of the drum to give greater power, to distribute the load better. The narrow-cavity expander tube gives more braking pressure with less fluid.

Landings are safer and smoother. BFG brakes respond smoothly and quickly to minimum pressure, take emergency overloads better, cannot lock or grab. And they last longer because more of the brake lining is used. Elimination of rivets permits full, positive braking down almost to the metal backing.

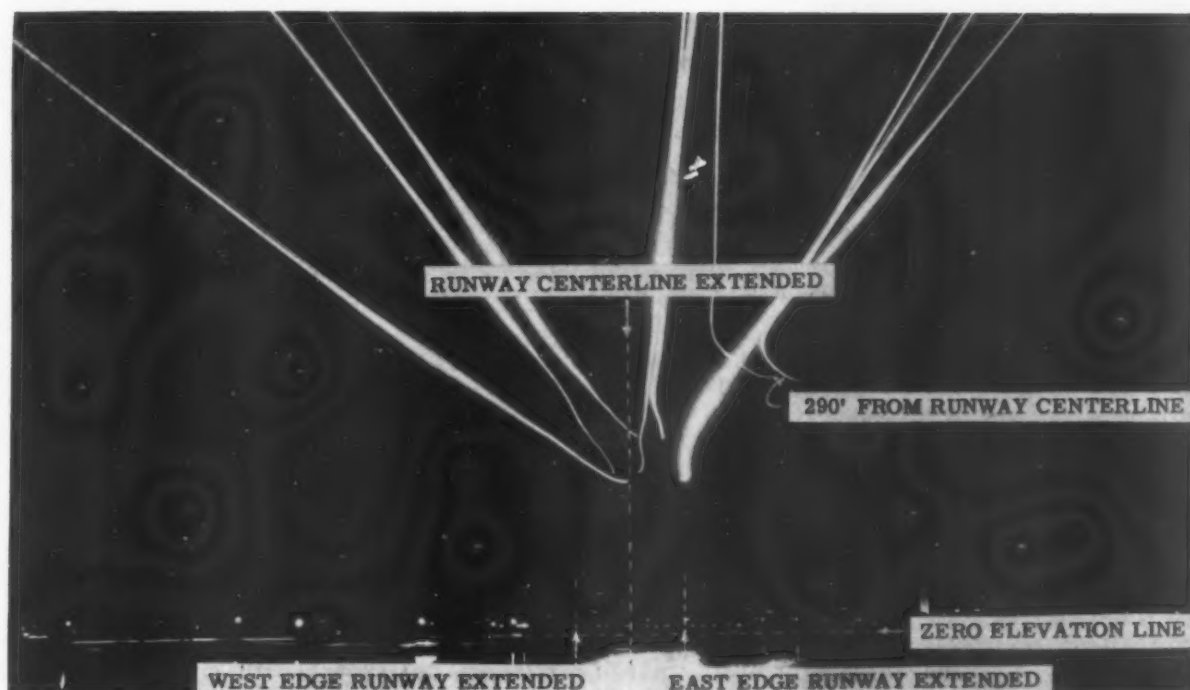
There are other advantages. Ventilated shoe dissipates heat more rapidly.

Retractor spring action eliminates wear due to drag. Relining can be handled with a screwdriver and wrench.

Other aviation products to come from BFG's research and engineering include: tires, heated rubber, De-Icers, inflatable seals, Avtrim, Pressure Sealing Zippers, Plastilock adhesives, fuel cells, Rivnuts, accessories. *The B. F. Goodrich Co., Aeronautical Division, Akron, Ohio.*

B.F. Goodrich
FIRST IN RUBBER

AMERICAN AVIATION



LANDING LIGHT TRACES of 57 landing aircraft, similar to those shown above, made during VFR night-time ap-

proaches, have shown that even in VFR flight many aircraft are not where they should be at this stage in the approach.

Breach Widens on High-Intensity Light Plans

Five-man committee split on center-row system with military opposed, civilians in favor of it.

By WILLIAM D. PERREAULT

THE HIGH-INTENSITY approach light controversy broke out again last week with new ferocity as representatives of three major civil groups—CAA, the Air Line Pilots Association, and the Air Transport Association—signed a report favoring the ALPA center-row system.

The U. S. Air Force and Navy members of the five-man working group, which has been conducting an operational evaluation of five types of approach lights for the past 18 months, refused to sign the majority report and failed to submit a minority report.

The high-intensity approach light problem remains one of the most controversial subjects in all-weather flying

today. In January, 1951, CAA Administrator Charles F. Horne appointed a five-man committee to study the whole situation, taking into consideration the five major types then proposed and installed in varying numbers in this country the committee was also to make recommendations.

"Lights Now"

Meanwhile, following the general demand for "lights now, standardization when it's convenient," CAA has installed approximately 20 left-row-ladder systems. This was particularly unfortunate because:

- The left-row-ladder system does not meet the approved national standard, which calls for the CAA-designed slope-line system.

- Nobody wanted the left-row-ladder—it was simply the least objectionable to all parties, as CAA saw it.

- The current evaluation reports: "The left-hand-row has the greatest amount of erroneous information. It is easy to see, but to extract runway centerline information is often difficult and erroneous."

Using a simple but effective system of reporting (AMERICAN AVIATION, June 25, 1951), the recent 18-month operational evaluation of approach light systems recorded the actual comments of civil and military pilots flying the systems. The French system, Calvert system (British), and slope-line system were all installed and used at Patuxent River, Maryland. The ALPA center-row system and slope-line system were in use at Newark, N. J. In addition the slope-line system was used in five other major airports and the left-hand-row system at 14 points.



ALPA's center-row system, as seen 3,000 feet from end of runway.

These were the basic findings of the committee relative to the major systems:

- **Slope-Line-Alignment**—Direction time, from three to seven seconds with visibilities below 1,500 feet, is critical, particularly when there is any drift. Roll information is intermittent at visibilities under 1,000 feet, a very undesirable factor if any alignment/direction correction is necessary.

While it provides the most complete information under good visibility conditions, it is confusing and difficult to interpret under poor visibility. If only a few fixtures of one row are visible, the information is of little value in determining flight path correction or in confirming position and altitude. Altitude can vary as much as 300% from the ILS glide path instrumentation for heavy aircraft, minimizing the actual advantage of precision altitude and descent data of this system.

Erroneous Information

- **Left-Hand-Row**—Provides the greatest amount of erroneous information. Roll guidance, provided by the horizontal elements of the ladder, tends to lead the aircraft on top of the row. Unless the runway threshold is in view, alignment with the runway centerline is difficult to interpret, a condition that results in misalignment, requiring needless loss of runway and dangerous turning at extremely low altitude.

- **ALPA Center-Row**—Considered easiest for the pilot to interpret and consequently least time consuming. All desired elements are obtainable, and after once going "visual" no cockpit instrument reference is required. Condenser discharge lights with sequence flashing are recommended for added identification.

- **Calvert System**—All necessary elements are obtainable at a glance. Simple and natural to use. Ran a close second to the ALPA center-row system, with all pilots agreeing that, "This system provided instant and unmistakable guidance. There was no hesitancy in knowing what to do about visual flight corrections, if needed." System does not have identification feature of sequence-flashed condenser discharge lights.

- **French System**—Has inherent defect of the left-hand-row, plus additional undesirable features. Barrettes (small bars) used for left-hand-row delineation do not provide repetitive roll guidance required. Runway centerline information is difficult to extract and lacks continuity; perspective is difficult to interpret unless a large portion of the system can be seen.

Attacking the majority report of the committee, written by its chairman, A. E. Jenks of CAA's Operations Division, the Air Force and Navy members of the committee highlighted the hopelessness

of accommodating both the center-row interests of civil and military transport pilots and the requirements of fighters.

Said USAF committee member Col. James L. Lee in a letter to Jenks: "The Air Force's strict requirement for a clear zone free of hazards extending beyond the end of its runway pavement cannot be compromised. Until satisfactory flush-type lighting equipment is developed the USAF cannot consider any lighting system which will create a hazard in the runway clear zone."

Other Lee comments:

- **Reports were**, with but few exceptions, from experienced, highly qualified pilots of relatively slow-speed, multi-pilot, multi-engine airline-type aircraft. They did not, therefore, reflect the opinion of military, combat-ready pilots flying single-engine, high-performance aircraft.

- **No indication exists** that the pilots who reported had observed more than the one lighting system on which they commented. (Actually the pilot reports are liberally spotted with comments which specifically compare one system with another.—Ed.)

- **The limited information** placed before the committee was not considered adequate to substantiate any conclusion.

U. S. Navy committeeman Lt. Emile R. Meisel also felt that "Views of Navy pilots . . . had not been given proper weight, that adequate evidence had not been presented to prove any system superior to the current national standard, the CAA-designed slope-line system; no consideration was given to previous work in this field, particularly the work of the landing aids experiment station at Arcata, Calif."

Shift in Disagreement

The approach light evaluation committee's report is too new for conclusive indications of its future. It must be approved by CAA's Office of Federal Airways and the Administrator before it is an official report.

It would appear that Horne's earnest effort to find a common ground for agreement on approach light problems has simply shifted disagreement from one element of the industry to another.

This might lead to the conclusion that it will be necessary to use one standard of approach lighting for civil airports, where airline pilots account for about 78% of all instrument approaches, and another for military fields. As if in anticipation of such a conclusion, Meisel adds: "Civil air carriers are at present the principal users of visual aids at civil airports but in view of the present international situation it is felt that in the best interest of national security such aids should be acceptable to military and civil types of aircraft."

TWA Gets Permanent Trans-Atlantic Routes

Trans World Airlines was placed permanently in the trans-Atlantic air market early this month when the Civil Aeronautics Board and President Truman took the temporary tag off TWA's New York-Paris-Rome route. Change was made as the Board renewed, generally without alteration, the temporary trans-Atlantic certificates of TWA and Pan American World Airways for another seven years through July 4, 1959.

Both TWA and Pan American now have permanent and temporary routes to Europe. CAB refused to make all routes permanent on the grounds that the time is not "ripe" for permanency on an extensive basis. Unsettled political and economic conditions are major factors in keeping virtually intact the pattern which grew out of the Pan Am/American Overseas Merger Case several years ago.

Several changes of a comparatively minor nature were made, however. TWA was authorized to serve the Azores and Kuwait, and to serve Rome as an intermediate on a Cairo-Tunis leg. Nice, France, was added as a certificated point on Pan Am's certificate and its South Atlantic charter was amended to authorize service to Lisbon and Casablanca as intermediates between the Azores and Dakar. Washington and Baltimore were eliminated as co-terminals in the U.S. for both airlines.

Deferred for future consideration were TWA's request for renewal of its route east of Bombay and extension to Japan, and Pan Am's request for renewal of its route east of Calcutta. These will be heard jointly with the trans-Pacific applications of Northwest Airlines.

Sea Transport Out, Says Donald Douglas, Jr.

The World War II type of sea transport supply pipeline is obsolete and should be replaced by fleets of large, fast, high payload transport aircraft. Elimination of the sea transport system of war logistics would also eliminate the slow, awkward and fantastically expensive results that occurred by gearing the pipeline to the speed of a convoy of surface vessels.

Donald W. Douglas, Jr., vice president and director of military sales for Douglas Aircraft Co., called for this modernizing action in a speech before

the 35th annual convention of the Lions International in Mexico City.

In place of the sea convoys, Douglas would use fleets of 400 mile per hour transports, powered by turboprop or jet engines or combinations of both, which would carry payloads of 100,000 pounds per plane. He is certain that military air transport will be developed to a point where it will provide complete support for the field military establishment. He called such development "necessary and

inevitable."

Although a sea transport can carry 5,000 fully equipped troops, he pointed out that it cannot compare with the efficiency of 25 of one of today's production transports, the Douglas C-124, since such a fleet of aircraft can airlift 5,000 fully equipped troops from Boston to France, return to the U.S. and deliver another 5,000 to France before the sea transport has even completed one round trip.



FOKKER S-14 jet trainer shown in flight.

Fairchild Signs to Build Fokker S-14

FAIRCHILD Engine & Airplane Corp. has signed a preliminary one-year agreement with Fokker Aircraft Co. of Amsterdam to build a Fokker S-14 jet trainer under license. This is the first instance of an American company taking up the construction license of a foreign military aircraft without definite sales contract arrangements.

The S-14 is one of the few side-by-side-seat jet aircraft designed from the start purely for training purposes, and has no rivals in a comparable stage of development. The prototype has flown about 100 hours.

Interest in the Dutch plane has recently been mounting rapidly in NATO circles on both sides of the Atlantic, and the Dutch government recently gave Fokker a contract for 20 airplanes in a move which seemed intended to start the S-14 production line rolling and thus enable early delivery dates to be quoted to potential buyers.

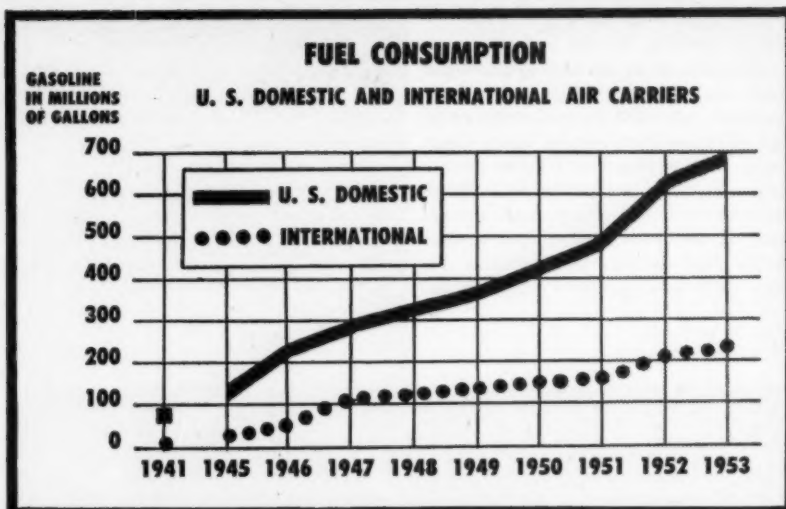
At about the same time, U. S. Air Force and RAF pilots were evaluating the plane (they reportedly passed favorable comments to Allied procurement agencies), and the Mutual Security Agency started discussions in The Hague on how to use the Dutch air-

craft industry's designs and productive capacity.

Fokker itself has been seeking co-operation with foreign manufacturers and last month contracted with Svenska Aeroplan AB of Linköping, Sweden, to build the SAAB Scandia twin-engine transport, in cooperation with another Dutch airplane firm, Avirolanda.

Top NATO officials who have flown the plane include Major General Craigie, USAF Deputy Chief of Staff for Research and Development, and Air Marshal Sir John Boothman, British Controller of Air Supplies.

Hitherto unpublished data on the Fokker S-14 characteristics and performance include the following: with a 3,600-pound thrust Rolls-Royce Derwent 5 centrifugal flow gas turbine, the S-14 has a top cruising speed of 400 mph at 25,000 feet, and a maximum cruising range of 600 miles at that altitude. It climbs from sea level at 3,000 feet per minute. Take-off distance over a 50-foot obstacle is 3,300 feet; empty weight is 3,200 pounds, and loaded weight (including two occupants, parachutes, and fuel) is 11,700 pounds. Span is 39 feet, 5 inches; length, 43 feet, 8 inches; and height, 15 feet, 4 inches.



Serious Avgas Shortage Threatens

Higher costs, supply cuts, and allocations may be in carriers' near future, with no answer at hand.

A CRITICAL shortage of high-octane aviation fuel, which threatens to curtail airline operations and seriously affect the country's military preparedness, is fast developing.

These are some of the end results which might be expected from this shortage by year's end:

- **Fuel costs will go up.** The military services are already paying a sizeable premium for aviation fuel, as compared with civil operators.

Still Not Enough

- **Despite increased costs** there will not be enough fuel to go around for civil operations unless the Federal government specifically sets aside additional fuel for airline and executive aircraft operation.

- **Allocation**, a nasty word in the aviation vocabulary, may become necessary.

The airlines are now paying about 16-18¢ per gallon for aviation fuel FOB the Gulf Coast. In 1951 the domestic and international airlines consumed over 600 million gallons of fuel (see chart). A one-cent-per-gallon fuel cost rise would mean over \$6 million additional operating cost. Yet the U. S. Air Force is now paying up to 20-plus cents per gallon for this type fuel. A parallel rise in airline fuel prices would cost the industry more than \$25 million annually.

More critical in the coming months than price will be availability. One major airline recently asked for bids on

supplying fuel at six points on its system. Not one company even made a bid.

Oil companies with long-standing contracts are beginning to wonder how they will meet their requirements in the light of military demands. Airlines without long-range fuel contracts are scrambling for the diminishing supplies.

The shortage is the result of:

- **Increased military operations.** USAF expenditures on aviation fuel and oil in fiscal 1953, starting this month, are projected at \$561,890,000, more than double the 1952 estimate. Much of this may be stockpiling, but the degree is an unknown factor.

- **Increased airline equipment and operations.** Best estimates indicate an increase of about 25% in airline fuel consumption in 1952 over 1951, and purchases will be up a total of 40% by 1953.

- **Rapidly changing nature of airline fuel requirements.** Many of the 228 new transports delivered to the airlines this year and some 200 scheduled next year require 108/135 or 115/145 grade fuel for optimum performance. There is a drastic difference in the fuel supply situation when one gets into these grades. All prewar and most earlier postwar transports use fuel with lower alkylate content, little affected by the current shortages.

- **Closing of the Abadan refineries** in Iran has forced the U. S. refineries into the position of supplying about

50% of world-wide aviation fuel requirements.

The shortage of alkylation capacity in the world's refineries has been prominently mentioned as a cause of the aviation fuel shortage. This is at best an understatement. High octane aviation fuel is primarily made up of alkylate. Actual content of fuel varies from one company to the next and from one refinery to the next within the same company. One company, for instance, uses up to 93% alkylate in 115/145 fuel. The national average alkylate content of 100-octane fuel is 60%, and 85% for grade 115.

Abadan Closing

Closing of the Abadan refineries was as critical because of the loss of alkylation capacity as because of the cut in actual crude oil output. It was one of five places outside of the U. S. where alkylation capacity existed.

Alkylate can be described loosely as the octane in high octane fuel. Octane ratings can be improved by the use of improved base stocks and by the addition of tetraethyl lead, in addition to alkylate. Increasing the lead content of 100/130 aviation fuel from three cubic centimeters to four cc's will reduce the alkylate content for the same rating, from 83% to 67% in a typical instance.

The problem is that increased lead content is highly undesirable, in the opinion of most operators, because of increased ignition troubles, valve-sticking problems, lead formation on parts, and generally higher overhaul costs. There are also major limitations to the degree of improvement that can be expected by adding lead. Nonetheless, the recent increase from 3 cc's to 3.6/4 cc's of lead is credited with increasing the supply of aviation grade fuel by 5%.

Higher Quality Base

Improvement in base stocks is one of two reasons for rapidly rising fuel costs to the marketer. Feed stocks, the products used in the alkylation process, normally consist of butanes and butenes costing about two cents per gallon, products which in some instances are not even utilized. With the sharp increase in aviation fuel requirements the regular aviation fuel refineries do not have sufficient low-cost feed stock to meet demands, and the feed stocks are often at refineries not equipped with alkylation capacity.

When turning from butanes to motor fuel, the refiner is faced with a feed stock cost of 10-12¢ per gallon. Yet existing contracts and OPS ceilings do not permit charging more for the finished product. It still markets at about 16-18¢ per gallon on the Gulf Coast. If the low-cost feed stocks, such as the surplus available in the middle west, are resorted to, the refiner is faced with the

extra shipping and handling costs. The answer is not simple.

Today the military services are paying almost 21¢ per gallon for high octane fuel. These sales do not come under the OPS ruling and are based on actual increased refining costs. The range between military and civil prices is justified on the basis of existing contracts and the fact that it is the military demand, on top of long-standing commercial needs, which is forcing the refiners to higher production costs.

Today about 3½% of each barrel of crude oil is made into aviation fuel. This could be increased to as much as 15-20%, but the cost would be high.

Major Operators Uninterested

Meanwhile provisions for alkylation must be increased, regardless of other fuel-stretching provisions. The major suppliers of aviation fuel are not interested, however, in the undertaking any major new alkylation capacity. Their forecasts show the high octane fuel requirements, and consequently the alkylation requirements, tapering off in the next few years as jet fuel usage increases. It takes about 18 months to two years to build an alkylation plant and put it in operation. These refiners feel that there is not adequate time in which to utilize these facilities before the demand slackens.

To provide incentive the Petroleum Administration for Defense offers facilities contracts, recommends government loans for plant construction, and assures rapid-write-off certificates. The facilities contract is basically a guarantee that the government will buy up the alkylation plant's output for a given period and thus assure a sound investment. Some small refiners are very interested in this program.

Unequal Incentive

There is not equal incentive for the large aviation fuel suppliers. Unlike the small refiners, who have made little or no use of their butanes, the big companies must resort to high-cost feed stocks. Further, while the government assures a guaranteed market for the new capacity, this might in some cases be maintained in future years at a loss of a market for the original portion of the refiner's capacity, now serving government contracts. Since the small operators have not previously bothered with the more stringent requirements of aviation fuel, any guarantee means new business to them.

The recent strike of oil company employees highlighted the current aviation fuel problem. The 28-day loss of production forced major reductions in civil and military operations throughout

the world almost overnight. Actually the total loss of inventory brought about by the strike was only 300,000 barrels of aviation fuel. This low loss resulted because the reductions in military and civil aircraft operations were within 300,000 gallons of the total loss of 2.5 million barrels.

This does not mean the fuel strike was not serious. The military services still have the money to buy the fuel which was not used in this period and intend to do so. While this might appear, on the surface, to be a needless demand for fuel, informed military and petroleum experts feel the military stockpiles are too low and must be increased. Actual result is that the fuel strike will continue to rob total supplies and cut that amount available to civil operators for some time.

What is the solution? None appears in the offing. Recent changes in the butylene requirements for synthetic rubber will help ease the problem by making low-cost feed stocks available for some additional output. This will actually be a relatively small improvement on the order of five percent. Allocation of fuel may be necessary but it is more likely that CAB will first be called on to work with other government agencies to provide the airlines with assurance that, with each new plane purchase authorized by defense requirements, an adequate supply of fuel will also be guaranteed.

CAA to Revise Phonetic Alphabet, AOPA Told

The Civil Aeronautics Administration plans to revise the new phonetic alphabet, according to a letter from Deputy Administrator F. D. Lee to the Aircraft Owners & Pilots Association.

The letter was written in response to one sent by AOPA to Charles F. Horne, CAA Administrator, which stated that AOPA has instructed its membership to disregard the new phonetic alphabet. Asking for immediate abandonment of the new alphabet, AOPA stated it was both confusing and dangerous.

The clarification intended by the alphabet, the letter continues, has not been accomplished, as is witnessed by similarities in sound between Victor, Nectar; Metro, Echo; Bravo, Tango; Kilo and Zero.

Lee's reply indicated that CAA will take action on the new alphabet in order to eliminate such similarities and that AOPA and other organizations concerned will be consulted on the change.

The Air Line Pilots Association had taken the same stand as AOPA and instructed its membership to continue using the old alphabet since the new one was not adequate.



First compound engine to be installed in a transport airplane is shown above in Lockheed's flying laboratory, a Super Constellation. Engine is the Wright R-3350 TC18DA1, rated at 3,250 hp. Crew Chief Aubrey Means, at left; at right, engineers Jack Real and Robert Laird.

Interview

with

HENRI ZIEGLER

**General Manager
Air France**

★

Air France Sees Expansion Ahead

★ ★ ★

Henri Ziegler, general manager of Air France, the French national airline, took over that function in the summer of 1948. Ziegler, at 46, has a brilliant aeronautical and military record behind him. He was in charge of the flying test center of Villacoublay during the critical years from 1937 until 1939. At the end of 1939 he came to the United States as assistant to the chief of the French Air Purchasing Mission, which ordered 6,000 war planes from aircraft manufacturers in this country.

After the armistice of 1940 between France and Germany, these airplanes were transferred to the Allied forces and Ziegler went back to France to join the underground. Appointed Chief of Staff of the French Forces of the Interior (FFI) he accomplished the difficult task of coordinating their activities and organizing parachute drops to them.

He was promoted to the rank of general and, at the end of the war, visited the U. S. and the United Kingdom as head of technical missions. He then became technical manager of Air France before being promoted to general manager. Ziegler has logged more than 2,000 flight hours as a pilot, half of them on prototypes, and has been awarded many decorations, among them the Legion of Merit.

Q. Does the introduction of tourist fares have an influence on standard services?

A. As far as the North Atlantic route is concerned, all the services of Air France, tourist and standard, are heavily booked up for the coming months. Thus, I can say that the introduction of tourist fares has not affected standard services on this route. The situation is the same on trunk routes in the French Union. The impact of the introduction of tourist rates may be different on shorter routes. There, standard services may yield traffic to tourist services.

Q. Do you think that present tourist rates may have to be raised?

A. As they are, tourist rates are very low. Their level was fixed some time ago, with Pan American insisting that they should be still lower. Costs have largely increased since the decision was made to enforce the present rates. Thus we may have to revise the actual level.

Q. Has the introduction of tourist fares created new business from Europe to the U. S.?

A. Very definitely. With the present rates we are definitely reaching new layers of users, not only in the U. S. but on this side of the Atlantic as well. Statistics show this very clearly.

Q. Air France has taken a definite stand inside IATA about the introduction of tourist rates in Europe. Can you comment on this?

A. Many European airlines did not share our opinion that tourist rates should be applied on the European network. This might well be in consideration of present equipment, which would have to be reconsidered for such services. The problem of equipment has always been fundamental in the discussions on tourist services and tourist rates. One must have both the right quality and the right quantity of equipment. Anyhow, I think that low rates are essential for the development of air transport in Europe. Many Europeans do not travel by air now because they consider that this transportation medium is too costly.

Q. How will you use the three Comets ordered for Air France?

A. Several routes of our network are suitable for the operation of the Mark I Comets. We may use them on our routes between France and Dakar and Brazzaville, or on our routes to the Near East serving Cairo, Beirut, Lydda, or even on our Far East route to Saigon. Operations of the Comet I are limited by the range of this airplane. However, on all above mentioned routes the Comet I can be used.

Q. Why did you order only three of them, and why were they Mark I and not Mark II, the latter being known at the time of your order?

A. We have ordered only three Comets because we want to get trained in the use of jet planes before operating a larger number of this type of equipment. Our aim is to study the special problems raised by the use of jet planes, and introduce the latter gradually into our fleet. Anyway, only three Mark I Comets were left when we placed our order.

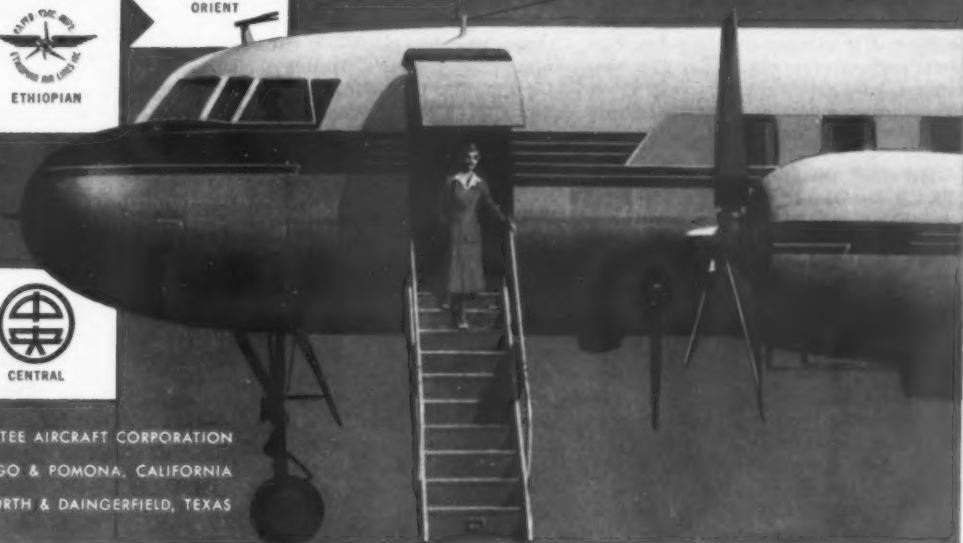
Our choice of the Mark I can be explained by our desire to have these planes operating by the summer season of 1953. We would have had to wait two more years for Mark II Comets. My opinion is that jet planes will have an immense attraction for the public. In fact, once mass produced, they will progressively wipe other airplanes from the market.

Q. Have you a spare parts problem, and how do you solve it?



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"Costs might win the race . . ."

A. We have no serious spare parts problem, because we always had a careful policy of storing, and because our purchasing organization in the United States has well adapted itself to the administrative formalities now involved in the acquisition of spares.

Q. But generally speaking, there is a spare parts problem in Europe and in the world. What do you think of the proposals which have been put forward for the manufacture of spares by the European industry?

A. We, as an airline, would not manufacture spares. This is not our business. Hispano-Suiza, a well-known manufacturer which has a plant near Paris, has contracted with Pratt & Whitney for the manufacture of spares for the R-2000 engines. This was 18 months ago. The tooling-up phase of this production is now over, and the production itself will start very soon. This manufacturing company is thoroughly experienced, not only in the manufacture of piston engines, but of jets, as well. They are now producing the "Nene" under Rolls Royce license.

What they are doing now is a good example of what could be done. This contribution of the European industry would be extremely useful, because the American air transport industry and the Air Force experience a bottleneck in spares, which it might help to overcome. However, as far as I know, the experience of Hispano-Suiza is unique. For instance, nobody has yet been able to contract with Wright for the manufacture of spares for the 3350 engine.

Q. Air France has actually on order 10 Super-Constellations, three Comets (Mark I), 12 Vickers Viscounts, and 12 Breguet "Deux Ponts." These airplanes mean a tremendous increase of your productivity in the next two years. Does the growth of the traffic justify such an increase of your potential?

A. Air France has, during the last years, been behind the potentialities of the traffic. For instance, in 1951 our traffic increased by about 20%. With an adequate fleet, the increase should have reached at least 25%.

I am not concerned by traffic. Our French Union market is in full development. French Union territories are developing themselves quickly, and our potential has to be adapted to this expansion. I am rather concerned with the increases of our costs: wages, equipment, and avgas are following a continuous uptrend.

We have been trying to cope with this development by means of increased productivity, but costs might win the race if the actual trend is not checked. The stabilization campaign of the French Government may halt this development.

Q. Has there been any Russian explanation for the attack on one of your Skymasters on the Berlin route? What steps do you intend to take as a result of the Soviet action?

A. The Russians have not taken any part in the inquiry which took place after the strafing of one of our planes. There can be no doubt that the airplane was on the right route. It was under radar control at the time of the attack, and within the lane prescribed for Western traffic. Another incident has occurred more recently and we are certain that our plane was on the prescribed route then, too. There is, however, no reason why those incidents should lead us to stop our traffic on our routes serving Berlin.

Q. Is there anything which you can say about the revival of a German airline?

A. A German airline will certainly be organized in the near future. As far as we are concerned, this will not affect our international German routes serving Berlin, as the new West German airline does not seem to be authorized to serve Berlin. I think that the Germans will start first with the operation of their internal routes. Later on they will engage in international traffic. Then we should not be much affected; less, indeed, than companies whose traffic originates for a large part in Germany.

Q. What are the prospects on your new route to Mexico?

A. The situation is good. We have advance bookings for some time, though the line is very new. We are eager to get Fifth Freedom rights, somehow, at New York.

Q. Is it true that Air France operates more route miles than any other airline? What is the most significant problem posed by these operations?

A. It is a fact that we are operating more route miles than any other airline in the world. We serve more than 130,000 miles of regular routes all over the world. Characteristics of these routes are very different. This explains why we have to operate relatively more types of airplanes than other companies whose operations are not as diversified as ours.

Q. How many aircraft does Air France operate, and how do they break down by type?

A. We operate 105 airplanes: 23 Lockheed Constellation 749A's; 27 Douglas DC-4's and C-54's; 20 Languedocs; 35 Douglas DC-3's. We have on order 37 more: 10 Lockheed Constellations (deliveries: first half of 1953); 12 Breguet 763's (deliveries: second half of this year and first half of 1953); three Mark I de Havilland Comets (deliveries: first half of 1953); 12 Vickers Viscounts (deliveries: six in 1953 and six in 1954). On the other hand, the Languedocs will retire with the delivery of the new types.

Q. How many people does Air France employ? What is the breakdown in the major categories?

A. Our total staff numbers 14,200 people; 1,200 are flying personnel, 13,000 ground personnel.

Q. Does the American-French currency situation create any real problem?

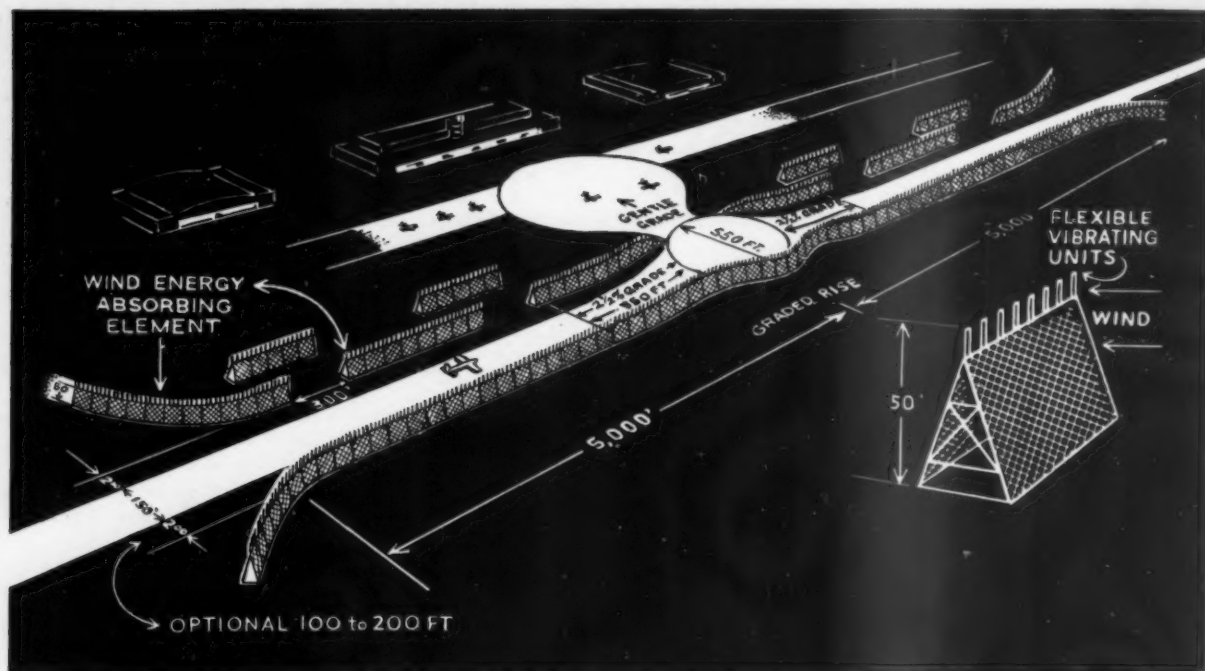
A. Like all other European operators, Air France has to take into account the shortage of dollars in France. One of the consequences of this shortage is that we have to submit our equipment programs to the Government for approval and allocation of the necessary currency.

Q. Could you outline your company's basic specifications for a jet transport for North Atlantic service?

A. What we want is an aircraft flying the Paris-New York run non-stop and carrying 60 passengers at a speed around 600 mph.

Q. Do you foresee a time when France's own aircraft industry will be able to meet the complete transport needs of Air France? How far off is this?

A. Our industry has lately done its best to cope with the consequences of the war years. It has recently built military airplanes which enjoy a good standing among NATO productions. As far as transport equipment is concerned, I think that our Breguet 763 is well adapted to the carriage of heavy freight on certain of our routes. However, I do not think that our industry will be able to cover all French air transport needs in the near future.



WIND-BREAK that shelters runway of Stratoport is shown in artist's sketch.

Will "Stratoports" Solve Airport Problems?

Jordanoff's plan for uni-direction runways with wind-absorbing fences sounds good, experts feel.

By JOSEPH S. MURPHY

THE "STRATOPORT," an airport with one or more uni-directional runways paralleled by a protective but harmless wind-absorbing fence, is Assen Jordanoff's solution to many of today's airport problems. In completing Phase One of his project, its introduction to industry, government, and military officials, Jordanoff indicated that reaction to his proposal has been favorable.

Jordanoff, noted Bulgarian-born flyer and aeronautical engineer, is now embarking on the second phase, that of drawing specifications for wind tunnel test-model evaluation, before undertaking a full-scale airport project at an estimated cost of about \$1,500,000.

The Stratoport runway is 10,000 feet long and 150 feet wide. It is inclined toward a "center table" 550 feet in diameter at a 2½% gradient from a point 550 feet out on each side. This provides a natural brake for landing aircraft and an acceleration assist for those taking off. Entrance and egress for terminal facilities is provided at the center of the runway.

The fence which protects the runway on each side is 50 feet high, an inverted "V"-shaped aluminum struc-

ture covered with wind-absorbing metal mesh said to be capable of reducing a 50 mile per hour crosswind to a harmless five mile per hour breeze. Flexible metal tabs along the top of the fence act as neutralizers for air currents passing over it, reducing their effect on aircraft landing in the "corridor." Distance of the fence from the runway border is optional but should be at least 100 feet and not more than 200, according to Jordanoff.

The Stratoport will triple the effi-

ciency of today's uni-directional runway airport, says Jordanoff, explaining that not only will it provide more take-off and landing positions but it will also cut taxiing time by about 50%. Small aircraft will not have to travel the full distance to the center after landing. Fence-protected exits will be provided on the terminal side at four other desirable locations.

Wind absorption is not the only desirable feature of such a fence, Jordanoff explains. The noise of low-flying planes, which is restricted to a localized area by the runway itself, will be absorbed by the fence while the plane is below with 50-foot altitude.

Industry opinions given Jordanoff include:

• **J. F. Gill**, Eastern Air Lines chief pilot: "Believe your proposal should be tried out full scale as a joint civil-military project."

• **D. S. Little**, American Airlines airway aids and electronics authority: "The proposal appears technically sound and operationally practical . . . first airport specifically designed for all-weather operation."

• **Alexander P. de Seversky**: "I hope that our Government and the industry will put your plan into effect without delay."

• **S. P. Saint**, Air Transport Association: "I would heartily endorse a study of your proposal by N.A.C.A."



ASSEN JORDANOFF, inventor of the uni-directional Stratoport.

Research Rides a Rocket

The Naval Research Laboratory's Viking rocket research at White Sands Proving Grounds, N. M., hunts facts, figures and formulas in the upper atmosphere.

HURTLING far into the blue, Naval Research Laboratory rockets ask questions of the earth's upper atmosphere . . . flash back the answers needed to guide the designers of tomorrow's piloted and pilotless super-altitude systems for peace or war. What are the pressures and temperatures of the earth's atmospheric layers . . . the high-altitude changes in the earth's magnetic field affecting navigational instruments . . . the alterations in radio waves caused by the ionosphere . . . the effects of sun spots on communications equipment out beyond the filtering effects of the earth's heavy atmosphere?

Martin Viking rockets play a major role in this high-altitude flight research program. Last summer, the Viking cracked the world's altitude record for single-stage rockets . . . nosing 136 miles into the heavens at a top speed of 4,100 m.p.h. Now, an even more powerful Viking is being readied for launching. The Martin Company is proud to be a partner with the Naval Research Laboratory in these vital activities . . . helping to prove that America's most valuable secret weapon is its scientific leadership! THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.

Martin

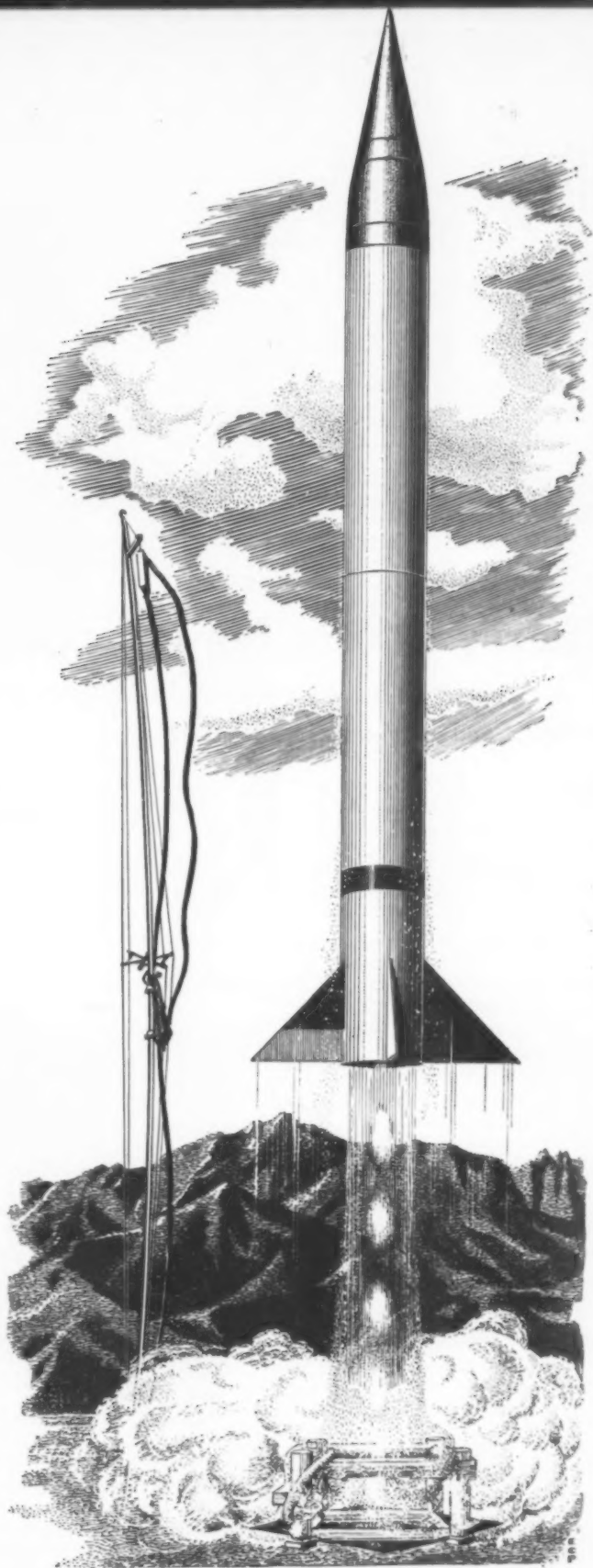


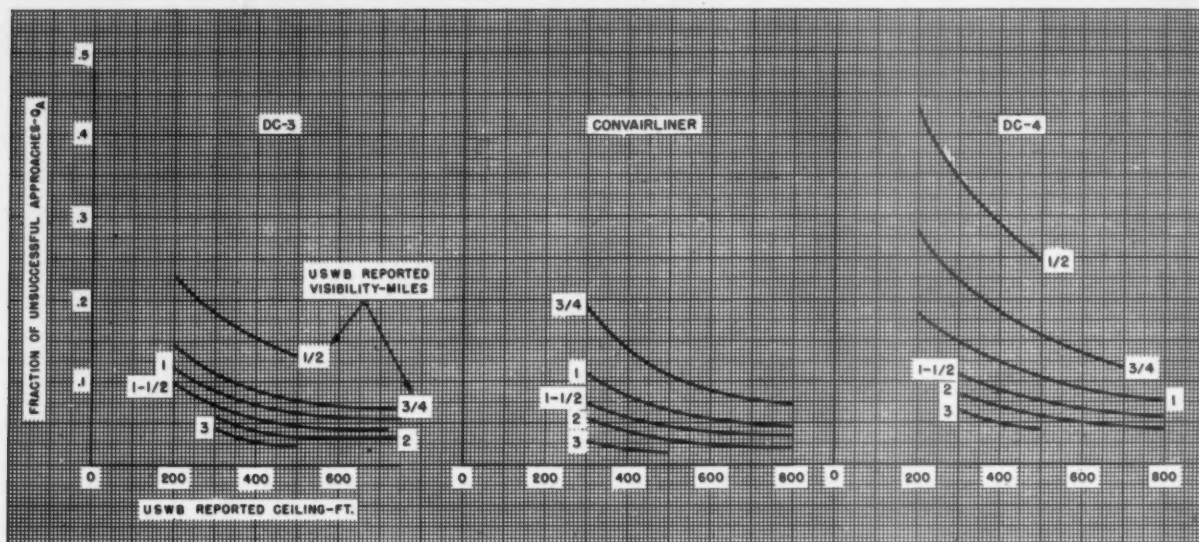
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UNSUCCESSFUL APPROACHES experienced in routine low-weather operation in the New York area are plotted

against specific ceilings, visibilities, and aircraft types in this Sperry Gyroscope Company chart.

Sperry Offers New Approach To Approaches

Skeptical industry hears results of tests with ZRFD, autopilot and coupler at IATA meeting.

MEMBERS of the International Air Transport Association, who met in Copenhagen to spend some 17,000 man-hours discussing the 120 seconds spent in the approach and landing of a modern transport aircraft, were generally agreed that:

- The current landing minimum of a 200-foot ceiling "just grewed," there being little factual justification for this particular value.

- No simple solution of the problems concerned in all-weather flying is known or anticipated at this time.

- Substantially lower minimums may be possible in the near future if existing equipment is incorporated in an improved, integrated system.

- The pilot remains the real limitation. It requires about 15 seconds for him to acclimate his senses in the transition from instrument flight to visual flight during landing through an overcast.

Sperry Gyroscope Company feels the answer to improved all-weather operation is much closer than does the industry at large. For several months Robert ("Bob") Roe, director of Sperry's Flight Research Department, has been releasing tid-bits of information about approach success of present day aircraft in routine instrument operations.

The figures, if true, are disturbing. Operators of Douglas DC-4's in CAA's First Region, centering around

New York, are missing about 30% of all straight-in approaches in weather of 400-foot ceiling and 1/2-mile visibility, Roe has reported. At 500-foot ceiling and 1/2-mile visibility the score is one-in-four missed approaches. Roe has claimed the figures are based on more than 13,000 low-weather approaches.

Invited to participate in the Copenhagen conference, Sperry's R. P. Snod-



FLIGHT RESEARCH HEADS, R. B. Roe and H. C. Bostwick, check recorded data after low-weather flight, while recording photographer, Tom Miller, right, looks on.

grass documented these claims. Starting in 1949 CAA's then Chief of Safety Operation in the First Region, W. W. McConnell, ordered that all 19 towers in his region keep precise records of approach success. He initiated this program, it is said, with no budget and no official sanction, to provide statistical data for approving or disapproving the airline requests for increasingly lower operating minimums.

Consistent Pattern

It wasn't long before McConnell was able to correlate "missed approaches" with Weather Bureau reporting accuracy. A consistent pattern of operations for each combination of aircraft and weather circumstances developed and, when WB reports were on the high side, the missed-approach ratio went up rapidly.

At this same time Sperry was attempting to establish a yardstick for measuring the degree of improvement possible by use of its various landing aids. An engineering approach to selling potential customers the necessity for such items as the Zero Reader Flight Director and A-12 autopilot with approach coupler was required. McConnell, with reluctance, authorized Sperry to operate its research plane in the below-minimum weather required for such tests.

Almost immediately, Sperry claims, the research plane disrupted CAA's previously clear record of approach success versus weather minimums. Sperry's planes consistently made successful landings when everyone else was missing them at established rates. At this point

of all the World's
International Airlines*



AVIATION PRODUCTS

For spanning oceans and continents—where performance counts the most—international airlines rely on ESSO Aviation Products. Airline operators know they can depend on the high quality of these superior petroleum products.

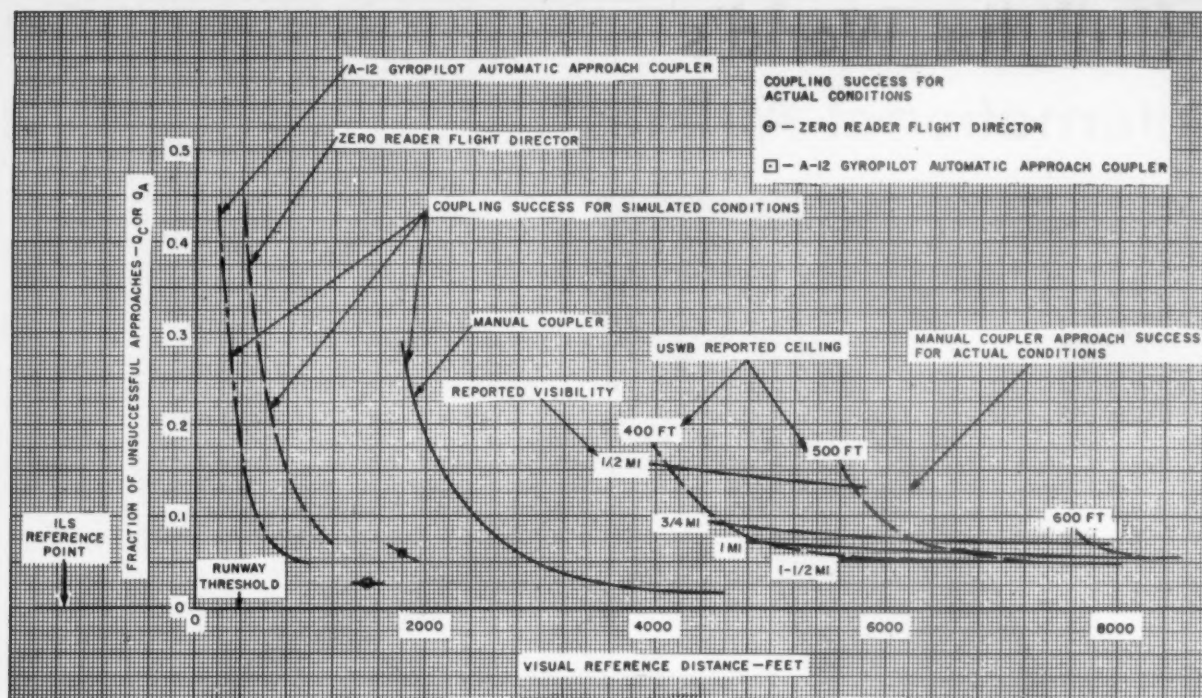
Uniformity of fuel and lubricant, standardization of service and safe, speedy refueling are essential to modern air carriers. Anticipating these vital needs ESSO aviation marketers pioneered the use

of the Hydrant Refueling System and today—even at such widely separated airports as Keflavik (Iceland) and Limatambo (Perú)—ESSO marketers provide the same fast and dependable petroleum service to all aircraft.

Yes, ESSO Aviation Products are available along the airways of the world—where you want them, when you need them.

A GOOD SIGN TO FLY TO





ROOM FOR IMPROVEMENT is shown in this chart contrasting approach success actually experienced by the airlines over a two-year period in the New York area (right)

with that experienced by Sperry during actual low-weather operations. Visual reference distance, as used here, means the range at which runway threshold is first observed.

McConnell started sharing his own findings with Sperry. McConnell's records clearly established the approach success that might be expected using conventional equipment—ILS, GCA, existing approach lights, and current pilot techniques.

Sperry made, in all, about 100 actual low-weather approaches using the Zero Reader and/or automatic pilot with approach coupler. The record (see graphs) was clear. Sperry's tests showed close correlation with CAA records for current operational equipment but showed major improvements when the Flight Director and approach coupler were used.

Controversial Approach

The Sperry approach to approaches is very controversial. Roe emphasizes that he does not ask the industry to accept the concepts that Sperry has proved to its own satisfaction. He simply asks that the industry start checking the approach success which it is experiencing. Sperry is not pushing the concept that the ZRFD or autopilot and approach coupler will assure lower operating minimums now. Instead the concept of seeking improved approach success with existing minimums is being stressed.

Actual low-weather approaches are very limited. Gathering statistical data on specific aircraft types at specific airports, with specific weather minimums,

is a slow process. CAA's records show startlingly few low-weather approaches when viewed in the light of over-all operations. Operations personnel, despite the documented records showing airline name, plane type, date, etc., are reluctant to believe that so many approaches are aborted. Others point out that unless the reason for the aborted landing is known the data is not valid as applied by Sperry.

Many of these objections may be valid. Despite this, Sperry has introduced many new concepts in its overall presentation to IATA, titled, "A Study of Approach Success," and these will open new channels of research.

The basic concept being promoted is that the pilot's reaction time is the real key to greater approach success. Unless this can be improved by human engineering, instrumentation must be used to the same end. Sperry's presentation is based on the fact that there are three types of couplers—manual, semi-automatic, and fully automatic couplers.

The manual coupler is the pilot. He must observe intelligence on the various cockpit instruments, interpret this data, and take corrective action. The time consumed determines the minimum altitude to which he may descend and still make a successful transition from instrument to visual flight.

The semi-automatic coupler is a device such as the Zero Reader Flight Di-

rector. It assembles data from the various instruments, interprets it, and presents it to the pilot as a signal on which he may act without further interpretation. Because it simplifies the approach problem, the ZRFD assures the pilot of making an improved approach to the runway. When he finally breaks out of the overcast and gets his visual reference from the approach and runway lights, there is less maneuvering required. The coupling between the plane and ground aids has been improved and approach performance is upped.

Pilot Monitors

With the automatic pilot and approach coupler, which feeds signals from the ILS system to the automatic pilot, the pilot serves only as a monitor. The coupling between the ground aids and plane is fully automatic, much tighter, and the assurance of successful approaches greater, Sperry's tests showed.

Sperry's documentation is long and impressive. The real crux of the case, it would seem, is to be seen in the two accompanying charts. One of these shows the results of CAA's First Region records, as reduced by Sperry to graph form, of present-day approach success. The other shows the results of Sperry's extensive actual and simulated flight tests contrasted with present-day records.

New, More Powerful Allison Jet Engines Put Added Sting in the Scorpions



THE NORTHROP SCORPION F-89C—newest all-weather jet interceptor for the Air Force—gets a big power boost from two new Allison J35 engines.

With take-off thrust in the new J35-A-33 engines greatly increased over previous models in the F-89 series, the Scorpion remains the highest-powered interceptor in production in the world today.

This increased power from the improved Allison engines gives the aircraft faster take-off—higher rate of climb—even with heavier fire power and radar equipment.

Pilots now pack a special Sunday punch in their round-the-clock patrol for any intruders approaching our shores.

Today, Allison engines are depended upon *exclusively* to power the interceptors which guard our shores—a demonstration of confidence based on the unequalled experience of more than 1,700,000 hours in the air—*more time, under all conditions, than all other jet engines combined.*



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Builders of J35 Axial, J33 Centrifuga
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Turbo-Prop Engines.

NORMAL FLIGHT

SPRING-LOADED VANE

ORIFICE

NEAR STALL

LOCAL
SEPARATION

FIG. 1
SPOILER WITH PITOT-STATIC TUBE.

FIG. 2
TRAILING-EDGE VANE.

FIG. 3
LEADING-EDGE ORIFICE.

STALL-SENSING devices are shown in Figures One through Four.

How Stall Warnings Work: NACA Reports

Basic principles outlined in recently published booklet on long-standing industry problem.

By WALTER A. KILRAIN

THERE have been stalls as long as there have been pilots, and each year has seen the grim chain of stall accidents lengthen. During 1950, almost 700 non-air-carrier accidents were blamed officially on stalls. In the air transport industry CAB figures show 19 accidents due to stalls in the 10-year period 1940-1949 (see box). Most of them were fatal.

To cut such losses, the aviation industry has long been searching for a reliable warning device that would alert a pilot who was dangerously close to stalling his plane. In a technical bulletin recently published by the National Advisory Committee for Aeronautics and titled, "Summary of Stall-Warning Devices," John A. Zalovcik sums up the progress to date.

Variety of Conditions

The problem has been to provide a device that would operate under all the varieties of flight conditions—changes in airspeed, wing loading, power settings, and even in icing—giving a warning at from five to 20% above the stalling speed, and operating with the reliability of an airspeed indicator. Until such an ideal device should come along, a compromise has sometimes seemed acceptable: a device that would work satisfactorily while landing, without ice.

Two basic approaches are used in the design of most warning systems:

- Stall-sensing devices check on the nature of the airflow past the wing, reporting those changes in pressure and direction that are characteristic of stalls.

- Angle-of-attack-sensing devices measure the direction of airflow at any point and, by relating this to a fixed

reference line, report the angle at which the plane is flying. Too steep an angle may result in a stall.

Most of the stall-sensing devices operate on one of two effects: flow separation on the wing (Figures 1 and 2), a condition in which the smooth flow of air over the wing surface gives way to turbulence, and the change in position of the "stagnation point," where the air flow divides to pass above and below the wing (Figures 3 and 4).

The turbulence that precedes a stall might occur first at various points along the wing, the exact location depending upon the flight conditions and the design of the airplane. It is possible, however, to arrange for flow separation to occur at the spot where the stall-warning device is installed by building a "spoiler" into the leading edge of the wing just in front of the warning instrument.

In Figure 1 a pitot-static tube is shown projecting above the top surface of the wing. Before a stall the pressure in the region of the pitot tube drops very sharply; connections with a pressure diaphragm result in this change in pressure closing an electrical circuit, and the warning is given.

In Figure 2, the same principle of flow separation is shown as it applies to a device which has been tested by United Air Lines. A movable vane, mounted above the surface of the wing near the trailing edge, is loaded by a spring which exerts pressure upon the vane continuously, tending to force it into a position perpendicular to the wing surface. Under normal flight conditions, the steady pressure of the air flow holds the vane parallel to the wing.

As the plane approaches a stall, however, the flow of air breaks away from the wing surface, and in the resulting area of low-pressure turbulence the vane rises into a more-or-less upright position. The movement closes a circuit, and the signal is sent.

The second type of stall-sensing device is illustrated by Figures 3 and 4. This type depends upon the change in location of the stagnation point. In Figure 3 an orifice is shown located in the leading edge of the wing at the spot where the stagnation point occurs during normal flight. As a stall approaches, the stagnation point moves toward the rear, and as a result the pressure at the orifice drops rapidly. The change in pressure is communicated to the pilot.

Direction Changes

In Figure 4 much the same pressure change acts upon a small tab, about 1/2 inch square, which projects from the leading edge at right angles to the surface of the wing. During normal flight the stagnation point is in front of the tab, which is pressed backward against a stop by the air flow. When a stall is near, the stagnation point moves behind the tab. The direction of the pressure is reversed, and the tab tilts forward, closing an electrical circuit.

Angle-of-attack-sensing devices are illustrated in Figures 5 and 6. In Figure 5, an ellipsoidal head is mounted so that it projects into the slipstream. A pair of slots in the head are spaced to provide maximum pressure sensitivity to changes in the angle of attack. The head rotates so as to maintain zero pressure differential across the two slots. Therefore, as the angle of flight changes, the position of the head changes correspondingly. This movement is measured and transmitted to the pilot.

Much the same effect is achieved

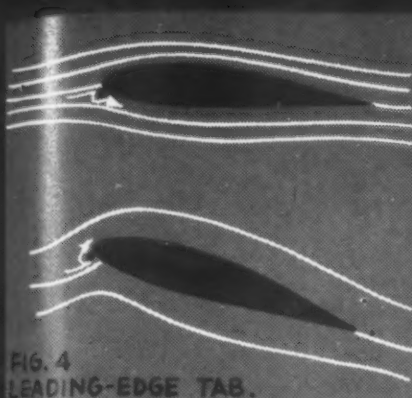


FIG. 4
LEADING-EDGE TAB.

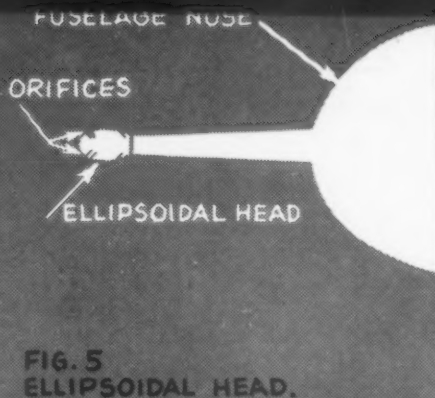


FIG. 5
ELLIPSOIDAL HEAD.

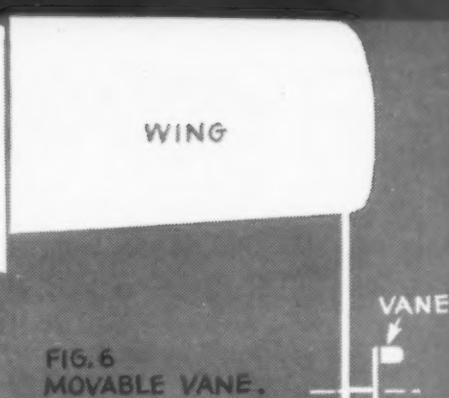


FIG. 6
MOVABLE VANE.

ANGLE-OF-ATTACK-SENSING devices are shown at right, in Figures Five and Six.

by use of sensitive, movable vanes. In Figure 6 such a vane is shown mounted near the wing tip. The vane is hinged so that it can align itself with the air flow in its vicinity. The changes in position that it makes in thus aligning itself with the air flow are transmitted electrically to instruments in the cockpit.

For all these devices, icing poses serious problems. In addition to the problem of ice on the device itself, ice on the wings produces significant changes in the angle of attack and the

maximum lift coefficient at which stalls occur.

One requirement for all such devices is that they be sturdy enough to withstand normal handling during maintenance. This is a point on which the delicate angle-of-attack vanes are particularly vulnerable.

The pilot may receive the warning from any such system by means of a variety of signals. Lights, if used, must be bright enough to attract his attention, but not so bright as to interfere with

his view of other instruments or his vision through the windshield.

Dial indicators, especially applicable to angle-of-attack-sensing devices demand attention that the pilot may not be willing to give them, particularly during landing. Other warnings include horns, radio signals, and stick-or-pedal-shakers.

As this was being written, the CAB released its report on the crash of a United Air Lines Boeing 377 Stratocruiser at Redwood City, Calif., on September 12, 1951. The crash occurred during a training flight, killing two check pilots and a flight engineer and demolishing the plane. The cause: Stall at low altitude.

The Grim Record

Selections from CAB list of stall accidents

Date	Location	Aircraft	Injury
Dec. 4, 1940	Chicago	DC-3	Fatal

Gliding in for landing with an undetermined amount of ice on the wings, the aircraft fell off to the left and crashed while in an incipient spin. Fire followed the crash.

Mar. 10, 1948	Chicago	DC-4	Fatal
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After a normal take-off had brought the plane to 150 to 200 feet, the aircraft began to climb sharply. At 500 to 800 feet, nose and right wing dropped and plane crashed. Fire after crash. No evidence of mechanical malfunctioning.

Oct. 9, 1949	Cheyenne, Wyo.	C-46F	Fatal
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Original plan called for flight from Las Vegas to Denver. When Denver proved to be below minimums, aircraft proceeded to Laramie, an alternate. There it was apparently caught in a sudden squall, with icing. Received permission to proceed to Cheyenne. Reported there at 14,000 feet, when ceiling was 900 feet with sleet. Crashed out of control two and one half miles from airport.

Nov. 29, 1949	Dallas	DC-6	Fatal
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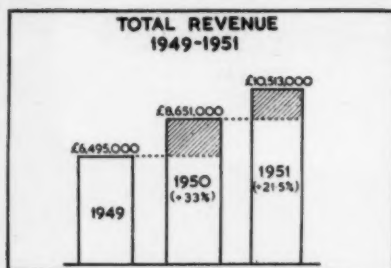
After missing landing approach, aircraft pulled up with No. 1 engine feathered. During go-around No. 4 engine lost power, then came on again suddenly. Co-pilot feathered No. 4. Aircraft stalled, crashed into wires and building.

AF Abandons Contract School Training

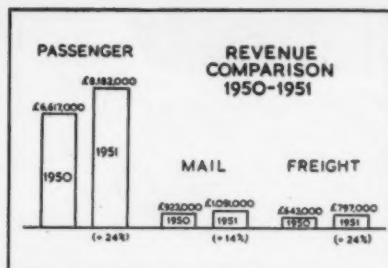
The Air Force is abandoning contract school training entirely and will "phase out" all civilian contract training schools, with the exception of the nine flight training centers, within the next three months. Affected are schools which have been training Air Force aircraft and engine, and radar mechanics, as well as electronics, automotive maintenance, and meteorology technicians.

No money was allotted for contract training in the fiscal 1953 defense appropriations bill. The USAF, however, will spend \$49,200,000 in its own schools for training and \$207,000,000 in support of such items as training equipment and supplies, base maintenance and operations, and repairs and minor construction at training facilities.

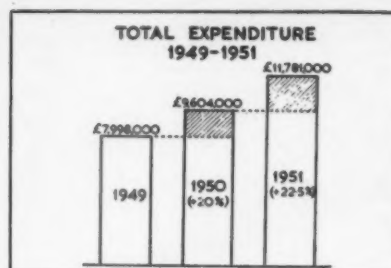
The USAF action is in opposition to the recommendations made by the Stanford Research Institute in a special study, which claimed that the civilian school training was superior to that provided by the Air Force. The Air Force did not concur with the Stanford Report, and stated that its instruction was both superior and cheaper, with a USAF average cost of about 84 cents per student hour.



EARNING INCREASES



INCOME SOURCES



OPERATING INCREASES

BEA Charts Reveal its Growth and Problems

BRITISH European Airways hopes to break even in its fiscal year 1953/54 and to operate thereafter in the black. The immediate financial future of the corporation is largely tied up with deliveries of Airspeed Ambassador and Vickers Viscount equipment.

Delays in the introduction of the Ambassador, coupled with the recent avgas shortage, are going to make 1952/53 an expensive year for BEA—the fuel restrictions alone cost the airline about \$850,000 in lost revenue (between May 12 and June 9, 1,973 flights offering some 61,000 seats had to be cancelled).

Britain's reduced currency allowance for foreign travel has hit the corporation hard. BEA was over \$500,000 short of budgeted revenue in April, and the rate of increase of passenger traffic on international services has fallen off from a steady 32% per year up to the date of the currency limitation to an equally steady three percent since then

—although the annual rate of increase on domestic services has remained steady at 15%.

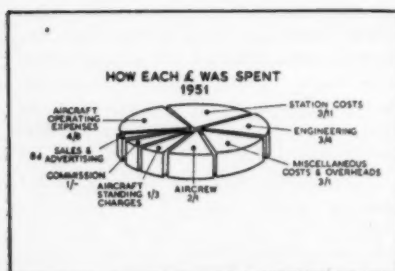
If this trend continues through the year, the reduction in budgeted revenue resulting from the currency restrictions will amount to some \$3,000,000. Peter G. Masfield, chief executive of BEA, says that this, added to the cost of the fuel cuts, indicates that the corporation "is going to have a pretty tough time this year."

Introduction of coach services in Europe next year will help BEA's financial position. On an average, the marginal cost of operating a coach Vickers Viking (with 32, 36, or 38 seats, according to the stage distance) is \$73 an hour on international services and \$104 an hour on domestic routes (the 30% difference is because domestic services carry the full impact of fuel tax and higher landing fees). Coach Vikings can better the standard 27-seat Viking's earning capacity per aircraft-mile flown by 6%,

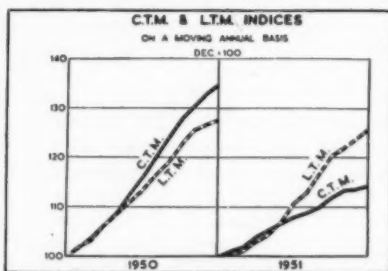
even at a 25% reduction in fare.

As the world's largest international carrier flying exclusively short-haul routes, BEA cannot be compared with operators of similar-sized aircraft fleets or those with systems similar in total length. For every mile flown and every dollar earned, BEA has to meet more station costs, provide more traffic staff, more landing fees, more circuits and landings, more passenger handlings, more customs clearances and more of the multifold terminal, transit, and sales functions than do long-haul operators. Each of the carrier's landings—there is an average of one for every 1½ hours of flying—costs about \$110.

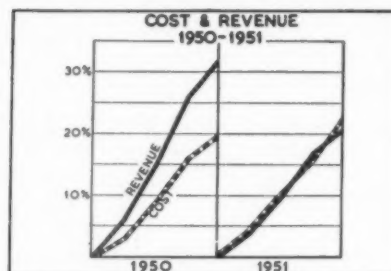
Progressive introduction of more economic equipment this year and next will lower BEA's break-even load factor from its present high 74%, but only when a way has been found to make summer profits outweigh winter losses will the corporation be on a really sound financial footing.



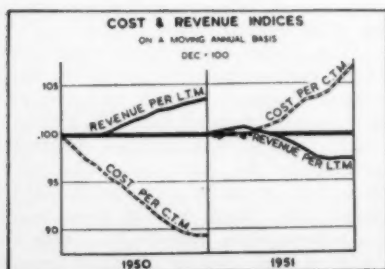
VARIED EXPENDITURES



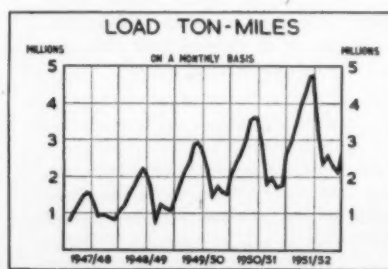
CAPACITY TON-MILE INCREASES



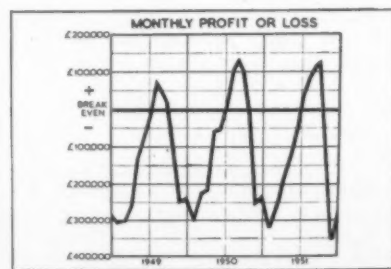
INCOME VS. OUTGO



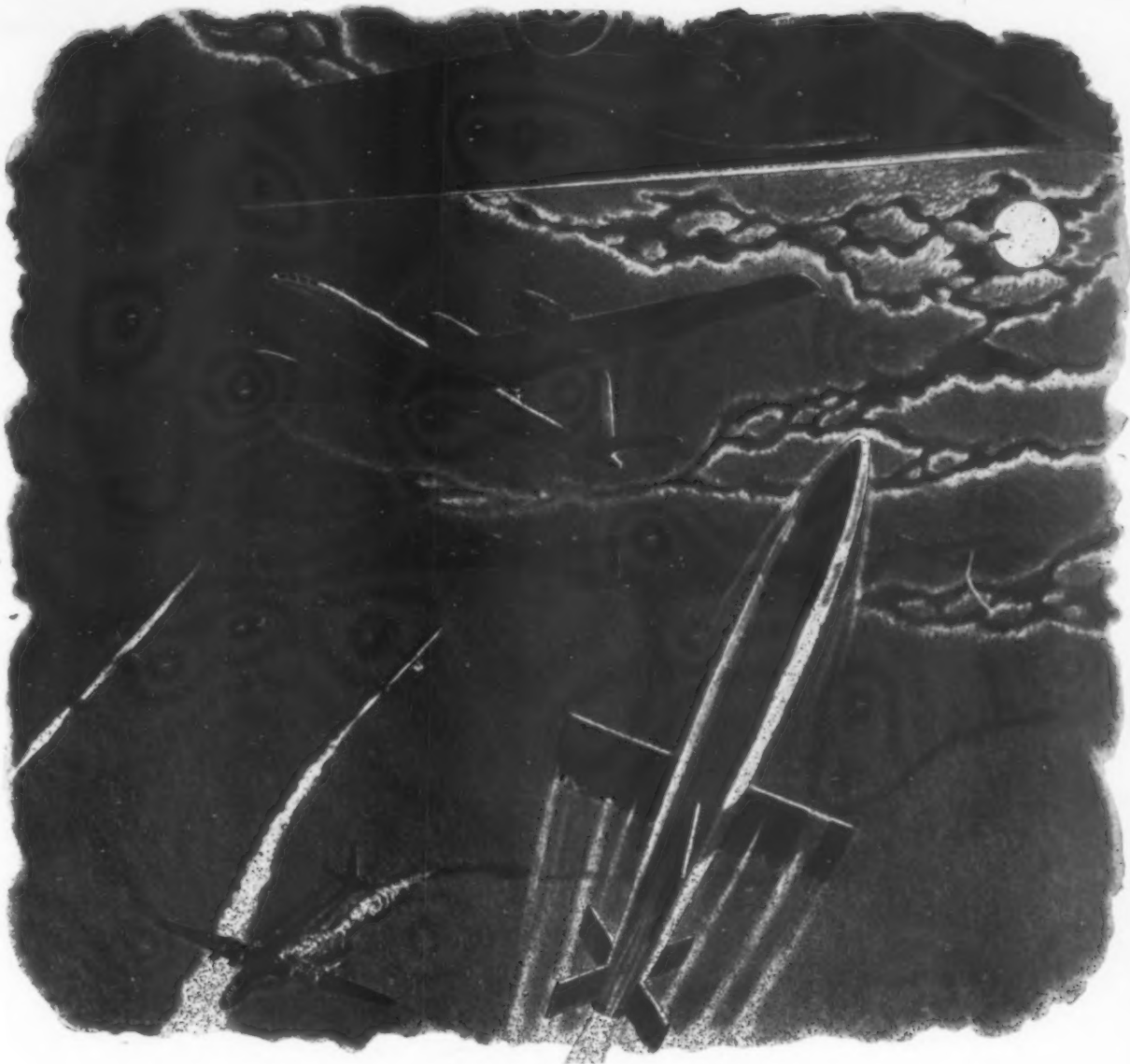
COST-REVENUE CURVE



SEASONAL FLUCTUATIONS



UP IN SUMMER, DOWN IN WINTER



NO PLACE TO HIDE!

Guided missiles now under development will make the skies dangerous for any future attacker. Neither weather, cloud layers nor night will offer him protecting cover. Radar homing missiles such as those being designed by Fairchild's Guided Missiles Division will—literally—leave No Place to Hide.

With its "Lark" missile used in training programs by all three branches of the Services—the Navy, the Air Force and the Army Field Forces—the Fairchild Guided Missiles Division is a leader in the guided missile field. In its "Lark" Fairchild has developed one of the most advanced guidance systems.

Because of the "Lark's" advanced guidance system, range has no effect on its accuracy. In addition, logistic support of missile batteries using the basic "Lark" guidance system is simpler, since the ground control requirements are less.

While the "Lark" today is a superb training missile, Fairchild Guided Missiles engineers are designing and developing new and vastly improved missile systems for tactical applications. At Wyandanch, L.I., Fairchild's Guided Missiles Division has just opened the first privately-built plant devoted exclusively to missile development and production.



ENGINE AND AIRPLANE CORPORATION
FAIRCHILD

Guided Missiles Division

Wyandanch, L.I., N.Y.

Other Divisions: Aircraft Division, Hagerstown, Md. • Engine Division, Farmingdale, N.Y. • Stratos Division, Bay Shore, L.I., N.Y.

Safety Award Goes to 42 Carriers

THE NATIONAL Safety Council has named 42 U. S. scheduled air lines as winners of its aviation safety award, in recognition of their contribution to safe air transportation in 1951.

In commenting on the award, Vice Admiral E. S. Land, president of the Air Transport Association, stated that in 1951 there was a daily average of 12,464 take-offs and landings, and that the percentage of fatal crashes in total daily operations was around 1/10,000th of one per cent.

"A comparison of the scheduled

airlines' safety record in five-year periods for the past 20 years shows," he continued, "that fatalities per 100 million passengers have dropped from 15 for the first five years 1932-1936 to 1.7 for the five years 1947-1951."

NSC pointed out that although the 1.3 deaths per 100 million passenger-miles for domestic operations was not as good as 1950's rate of 1.1, it still was one of the best in airline history.

The following table lists all the lines receiving the award with the span of safe operation and accumulated mileage.

Safety Records

Trunk Lines	Span of Safe Operation Period	Passenger-Miles Without Fatality to End of 1951 or Date of 1951 Accident
American Airlines	11-29-49 to 12-31-51	4,675,379,000
Braniff Airways	3-26-39 to 12-31-51	1,988,643,000
Capital Airlines	12-12-49 to 12-31-51	1,059,526,000
Chicago and Southern Air Lines	8- 5-36 to 12-31-51	1,174,102,000
Colonial Airlines	4-18-30 to 12-31-51	462,588,000
Continental Air Lines	5- 1-35 to 12-31-51	586,076,000
Delta Air Lines	3-10-48 to 12-31-51	1,077,784,000
Eastern Air Lines	11- 1-49 to 12-31-51	3,100,905,000
Inland Air Lines	4- 1-31 to 12-31-51*	241,613,000
Northeast Air Lines	8-11-33 to 12-31-51*	530,175,000
Pan American Grace Airways	1-22-43 to 12-31-51	884,262,000
Trans World Airlines	8-31-50 to 12-31-51	2,540,855,000
United Air Lines	6-17-48 to 4-28-51	4,143,506,000
Uruba, Medellin & Central Airways	40 to 12-31-51*	13,562,000
Western Air Lines	12-24-46 to 12-31-51	799,802,000
Territorial Lines		
Alaska Coastal Airlines ..	12- 2-49 to 12-31-51	5,342,000
Byers Airways	6- 50 to 12-31-51*	204,000
Caribbean-Atlantic Airlines	9- 42 to 12-31-51*	37,916,000
EHIS Air Lines	8- 46 to 12-31-51*	9,778,000
Hawaiian Airlines	11- 29 to 12-31-51*	352,851,000
Northern Consolidated Airlines	12- 47 to 12-31-51*	13,403,000
Pacific Northern Airlines ..	8- 46 to 12-31-51*	56,018,000
Reeve Aleutian Airways ..	4- 48 to 12-31-51*	9,221,000
Trans-Pacific Airlines	6- 49 to 12-31-51*	30,617,000
Wien Alaska Airlines	8- 46 to 12-31-51*	13,557,000
Feeder Lines		
All American Airways ...	3- 49 to 12-31-51*	64,468,000
Bonanza Air Lines	12- 49 to 12-31-51*	13,290,000
Central Airlines	9- 49 to 12-31-51*	7,463,000
Empire Air Lines	9- 46 to 12-31-51*	35,755,000
Frontier Airlines	11- 46 to 12-31-51*	89,528,000
Lake Central Airlines	11- 49 to 12-31-51*	7,783,000
Mid-West Airlines	10- 49 to 12-31-51*	1,899,000
Ozark Air Lines	9- 50 to 12-31-51*	9,828,000
Piedmont Aviation	2- 48 to 12-31-51*	103,105,000
Pioneer Air Lines	8- 1-45 to 12-31-51*	164,223,000
Robinson Airlines	51 to 12-31-51*	16,267,000
Southern Airways	11- 49 to 12-31-51*	29,236,000
Trans-Texas Airways	10- 47 to 12-31-51*	54,077,000
West Coast Airlines	12- 46 to 12-31-51*	45,459,000
E. W. Wiggins Airways ...	9- 49 to 12-31-51*	790,000
Wisconsin Central Airlines	2- 48 to 12-31-51*	31,877,000
Cruise Lines (Scheduled)		
Resort Airlines	3- 4-50 to 12-31-51*	3,174,000

* No fatal accident from date of establishment of air line.

Noise Complaint Center Opens in New York

The National Air Transport Coordinating Committee has set up an aviation complaint center in New York City where residents around Newark, LaGuardia, and Idlewild Airports can directly report low-flying or noisy commercial planes. The idea, according to Supervisors John Groves and I. O. Barnes, is to have the air transport industry constantly active in policing its own mistakes.

Complaints will be received by phone or mail, be analyzed by the Center's staff, and the results plotted on large charts of airport areas. The system is expected to point up the specific areas of greatest public annoyance from aircraft noises. Special studies, conducted by the NATCC, will be centered on these areas to bring about further noise reduction.

The Center, on receiving complaints of supposed safety-rule violations, will attempt to locate and identify the plane. Details of the alleged violations will be sent to the airline's operation staff for corrective action.

Pilot Safety Meetings Prove Successful

More than 700 accident prevention and safety recommendation panel meetings in the various CAA regions, with an attendance of more than 20,000, have been staged in the past year. CAA Administrator Charles F. Horne stated that the meetings have made tremendous advances in air safety education.

The pilots organize and moderate the meetings themselves. In several CAA regions the discussion-type meeting has grown into a more comprehensive program. In Sacramento, Calif., pilots presented seven major safety recommendations to the Municipal Airport, which were immediately adopted.

Kits for conducting the meetings are available from CAA's Washington and regional offices, and all CAA safety agents are available for assistance in planning the meetings.

Douglas Backlog at Peak

The Douglas Aircraft Company's commercial backlog is the highest in its history. United Airlines' recent purchase of 25 DC-7's boosted it to \$236,000,000.

The UAL order lifted the postwar total of Douglas commercial transports to 410. Of these, 308 have been delivered or are on order by domestic airlines; 102 are slated for foreign carriers.



Congratulations
Chicago & Southern Air Lines
on your outstanding
engine service record!

With an all-time record of 500 consecutive days' and 109,000 engine hours' operation without a single DC-3 engine failure, Chicago & Southern Air Lines rates a big round of praise from the aviation industry.

Singled out for special tribute are the operation, maintenance and engineering men whose job it is to "keep 'em flying."

Such a record deserves a salute . . . and Shell, as the supplier of AeroShell® Oil used in these engines, is happy to be among the first to say "Well done, Chicago & Southern!"



SHELL OIL COMPANY

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100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA



Leadership demands constant achievement

Faster
than a cup of coffee

Lockheed Starfires

destroy an air
invader

Incredible—but in less time than the few minutes it takes to drink a cup of hot coffee a Lockheed *Starfire* (F-94C) can

Take off from a cold start—

**Climb 7 miles up in any
weather—**

**Locate enemy bomber
automatically—**

**Destroy the invader,
without ever seeing it.**

Furthermore, the 2-man crew need never have seen the bomber they destroyed.

Today these all-weather jet interceptors are being delivered to the U.S. Air Force for 24-hour duty guarding U.S. borders and key cities. It gives the Air Force a fast-climbing jet fighter that is almost automatic—forerunner of planes that may actually fly and fight by themselves.

The *Starfire's* brain center can locate invading bombers on the darkest, stormiest night. Its unique all-rocket armament can destroy the biggest bomber built.

The *Starfire* is another example of Lockheed design "stretch"—an engineering achievement of creating a more advanced model out of an existing airplane. This speeds development and production, also cuts cost. Forerunner of the *Starfire* is the Lockheed F-80 *Shooting Star* of Korean fame. Lockheed is the world's leading builder of jet aircraft.

Lockheed

Aircraft Corporation

Burbank, California, and Marietta, Georgia

*Look to Lockheed
for Leadership*

Lockheed

STARFIRE NEARLY AUTOMATIC FIGHTER

On the opposite page you see illustrated in action the nearly automatic Lockheed *Starfire* (F-94C). This all-weather jet fighter is an electronics masterpiece with an interesting development history.

The "C" is the third in the *Starfire* series and is now being delivered to the U. S. Air Force to augment squadrons of F-94A's and F-94B's now on 24-hour duty as protection for such key cities as New York and Washington.

The evolution of the *Starfire* actually dates from the spring of 1945, when Lockheed developed America's first operational jet fighter, the F-80 *Shooting Star*. From the F-80 came the T-33 two-place jet trainer now used to train 9 out of 10 U. S. jet fighter pilots (also pilots from 9 other nations).

In turn the T-33 was redesigned to incorporate the most advanced electronic equipment known as well as some unknown devices that had to be specially invented. This became the U. S. Air Force's F-94 *Starfire*, now developed to the point where it both flies and fights with more than human accuracy. It has an all-rocket armament—no guns!

Electronics innovations include the Westinghouse Autopilot and Sperry Zero Reader. It is one of the few fighter-type planes equipped with ILS (instrument landing system) for low-visibility landings. *Starfires* pack 1200 pounds of electronics, compared to 168 pounds of radio in the Lockheed P-38 of World War II.

The *Starfire* is the first production aircraft to fly with the new Pratt & Whitney J-48-P-5 jet engine. Its afterburner provides extra power for rapid take-off and extra performance in battle.

The F-94C is the largest of the original Lockheed jet series. The statistics: take-off weight, more than 2000 pounds; length, 41 feet, 5 inches; wingspan, 37 feet, 6 inches; height, 13 feet, 7 inches.

A pioneer in the jet field, Lockheed has produced more jet aircraft than any other manufacturer.

Extra Section

By William D. Perreault



ON JULY 5 Chicago & Southern Airlines completed its 500th consecutive day of operation of 12 Douglas DC-3's without an engine failure. This means the C&S fleet completed 109,000 engine operating hours with the Wright R-1820 G-202A engines during this period, a tribute to both the engine and the airline's operating, maintenance, and overhaul procedures. Approved overhaul time for the C&S R-1820's is 1,450 hours and the company actually operates them 98.38% of this time. There has only been one propeller feathering during the past 10 months of DC-3 operation, and this was a precautionary measure. This is indeed a tribute to the Cyclone engine and to C&S's operations, maintenance, and overhaul men.

From the Directorate of Flying Safety, Headquarters, Tactical Air Command, comes this comment on approach radar:

GCA means Ground Controlled Approach

—Not, Gonna Come in Anyway.

So if the soup is below minimums

And you've gotta clear alternate

Pull up and land there instead.

CAB is sometimes accused of concluding accident reports with the obvious comment that the aircraft ran out of altitude. More picturesque is the conclusion of an Indian Court of Inquiry reporting on a recent crash: "Of one thing alone, we can be certain. An inexorable destiny dogged the flight of the plane from Agra and creating a concatenation of factors favourable to the achievement of its end, it overwhelmed the aircraft just as it was about to land into safety."

After a DC-6, making a landing at Washington National Airport, made a sharp pull up and executed a missed-approach procedure, the pilot calmly informed the passengers he had been "practicing" a GCA approach and another plane had cut into the pattern in front of him. The passengers, who had been a little shaken by the whole operation, were quick to comment among themselves about the pilot's "practicing" during a scheduled flight. Public address systems in planes have their uses, but careless terminology can cause undue alarm among lay passengers.

From London, ATA's Sam Saint received a letter from D. O. Frazer, an operations officer with the Ministry of Civil Aviation, complimenting him on the work he has been doing promoting the concept that what we need for turbine aircraft operations is "better traffic control, not different air traffic control." Frazer notes that Saint's views, which have been widely reproduced in the pages of *AMERICAN AVIATION*, "have been confirmed, at least so far as the Comet I is concerned." He adds that the Comet "is like a new broom sweeping out the cobwebs from existing ATC methods and practices."

How successful can airport zoning be as a means of improving safety of people on the ground? It seems to us that this is related to mental attitudes. It's our understanding that one major West Coast airport, which originally had vacant lots adjacent to the ends of its major runways, now has three schools located in these relatively dangerous areas. From California comes word that Superior Judge Murray Draper will rule in favor of condemning airport property to make room for a playground; inasmuch as a school was already located in the "safety belt," the location of a playground would create no additional hazard, he noted. Decision awaits the fixing of a proper price. God bless you, kiddies.



SPERRY PORTABLE engine analyzer.



BENDIX MODEL 11-3350 ignition analyzer.

Training Key to Ignition Analyzer Success

Average mechanic must accept and be able to use it, conference is told Bendix offers two courses.

By JOSEPH S. MURPHY

ALTHOUGH the ignition analyzer has demonstrated its worth as a tool in the troubleshooting of ignition system deficiencies, the actual service experience gained to date is still relatively small. Ultimate acceptance by the mechanic doing the day-to-day job will be in proportion to the amount and type of training accompanying the device's introduction into use.

These were the opinions offered at the recent Bendix Ignition and Engine Analyzer Conference. Intended to summarize by impartial survey the experience gained in the operation of all types of analyzers, regardless of manufacturer, the three-day conference included 167 representatives of airlines, both foreign and domestic, aircraft, engine and accessory manufacturers, the Air Force, Navy, and CAA. Chairman was Bob Boyer, Bendix-Scintilla senior sales engineer.

The analyzer is just beginning to make its way into airline and military operations on a large scale. The recent purchase of Bendix portable/airborne equipment by American Airlines for its fleet of 144 DC 6 and Convair aircraft appears to be the first application on a large scale. Portable/airborne equipment provides aircraft wiring and stor-

age for easy hook-up of the analyzer for flight testing or routine ground maintenance test purposes, and is so distinguished from the portable equipment which involves no aircraft wiring accommodations. The airborne configuration uses an analyzer installed in each aircraft for flight observation of the ignition system performance.

Northeast Airlines, in its third year of analyzer use with its DC-3 and Convair 240 aircraft, has found success in routine use. After only partial acceptance of the unit during the first two years, NEA found the answer in formal schooling of its lead mechanics at the factory. Bendix offers two "no-cost" training courses to its customers, one for the operator of the analyzer and the other for personnel who will maintain and overhaul it.

Air Force Acceptance

Acceptance of the analyzer is by no means confined to civilian aviation. The Air Force has qualified both the Sperry and Bendix units utilizing portable/airborne for the C-119 and C-54, and airborne in the B-29, B-50, B-36, C-118, C-74, and C-124. Corporation aircraft will be represented by Pratt & Whitney's Bendix installation in its Convair 340 airplane.

Opinions vary as to the type of

personnel to be used for analyzer interpretation. Pan American in its use of the Sperry unit on Boeing 377 aircraft has utilized assistant foremen, or those higher in grade. Northeast uses lead mechanics; United's evaluation test will employ radio electrical specialists; and TWA, line service electrical personnel. American plans to train about 600 line mechanics on analyzer operation. It is hoped that the analyzer will become every mechanic's tool, and not that of the specialist or hand-picked flight engineer alone.

The name analyzer was described as a misnomer, since it implies that the unit and not the user who reads and interprets the voltage wave patterns determines the trouble. Success in getting the average mechanic to accept the unit should be improved by convincing him that the analyzer will only be as good as he, the operator, makes it, and that the most frequent user will become the most capable operator.

Although information available for the most part reflects prototype installation experience, airborne equipment provides about 45 pounds added weight and requires from 500 to 700 man-hours for design, parts fabrication, and installation. Considerable reduction of manhours, in some cases 50%, can be expected for production installations. Portable/airborne installations average slightly more than 20 pounds added weight and about 100 man-hours for aircraft modification.

The relative advantages of port-

able/airborne and airborne equipment are summarized as follows:

PORTABLE/AIRBORNE

- Less weight added to airplane.
- Fewer analyzers needed; smaller investment.
- Keeps ignition maintenance in maintenance department; avoids conflict in interpretations.
- Fewer people need training; lower training cost.
- Presents no installation space problem.

AIRBORNE

- Provides high altitude ignition trouble surveillance.
- Reduces mechanical delay time by providing pre-arrival analysis.
- Assists preventive maintenance by periodic in-flight checks.
- Reduces analyzer maintenance from ground mishandling.

The use of engine analyzers as opposed to ignition analyzers brought indications of limited experience. Such equipment, which includes vibration pickups to detect other than ignition problems, is being used by Pan American on Boeing 377's with one-cylinder pickup.

The evaluation tests by TWA on the Sperry and Bendix analyzers are planned without vibration pickup equipment. Bendix does not recommend the use of vibration pickup equipment with its analyzer at the present time, feeling that with its weight, complexity, and cost, it is not justified.

A newcomer to the analyzer field, briefly discussed during the conference, was Electro-Science Corporation's Land-air Analyzer, now in production as either ignition or engine analyzer, satisfying the requirements of any of the portable or airborne uses. A nationwide tour of introduction is planned this month. Basic price, including accessories but excluding installation costs, is said to be about \$2,100.

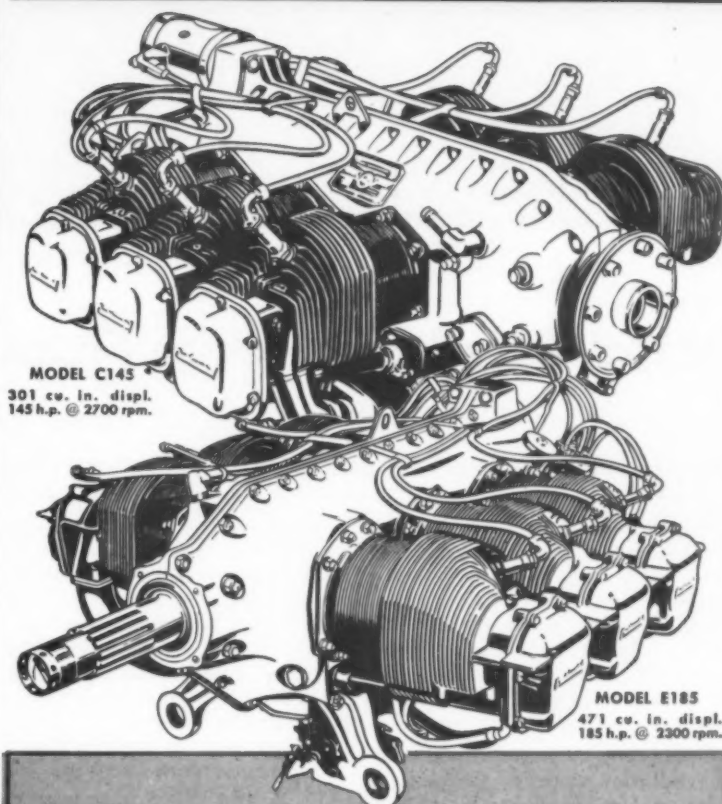
The unit weighs about 20 pounds, is adaptable to two, four or six-engine aircraft, permits viewing one cylinder and a neighboring position at the same time, is synchronized by a three-phase generator of the tachometer type used with Curtiss propeller installations, and features quick installation and removal.

The free and willing exchange of technical information and experience at conferences of this sort was praised, in a conference-ending banquet speech by Ralph S. Damon, president of Trans World Airlines, as a great contribution to aviation safety, which has improved 50 fold in the last 15 years.

POWER

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MODEL C145
301 cu. in. displ.
145 h.p. @ 2700 rpm.

MODEL E185
471 cu. in. displ.
185 h.p. @ 2300 rpm.

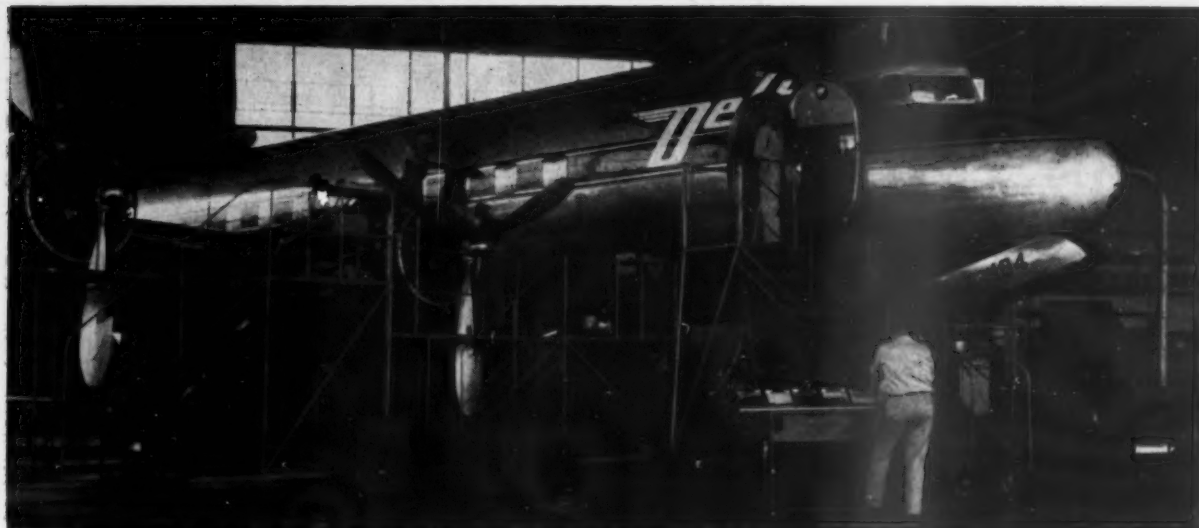
Of the 15,000 non-carrier type planes in the full-time or part-time service of business firms today, the great majority fly with Continental power. Underlying this preference is Continental's proven dependability, resulting from sound engineering, conscientious manufacture, and a long-established policy of providing parts and service wherever people fly.



Continental Motors Corporation

Aircraft Engine Division

MUSKEGON, MICHIGAN



DELTA DC-6 gets a hangar check at the airline's overhaul base in Atlanta.

Delta Gets Longer Life From R-2800's

Cylinder time limitation, BMEP gauge usage, smooth employe relations and pilot cooperation credited.

IN FOUR YEARS of Douglas DC-6 operation Delta Airlines has learned to have great respect for the Pratt & Whitney R-2800 engine. Looking at Delta's record with the widely used R-2800, a good cross-section of the industry has come to feel similar respect for Delta's maintenance and operations.

Delta's operation is marked by the ability to correct troubles in record time and in many instances to completely avoid troubles experienced by other airlines. One result is the attitude of G. J. Dye, Delta's superintendent of maintenance, who often questions the value of annual equipment conferences on the grounds that Delta corrects its problems as they develop, and consequently finds itself with few if any points to discuss in such meetings.

In a typical six months of operation

with R-2800 engines in its fleet of seven Douglas DC-6's, Delta flew 10,060 plane-hours or 40,240 engine-hours with only five premature removals. Of these five only two required overhaul. Operating with 12 spare engines, Delta overhauls its engines twice a year. It recently extended its overhaul period from 1,200 hours to 1,250 hours to make overhaul coincide with its number three inspection requirements.

A look at ten consecutive engines, with regard to total hours on the engine at the time of overhaul, reveals the actual operating experience as contrasted with the approved overhaul time:

Removal Time in Hours:

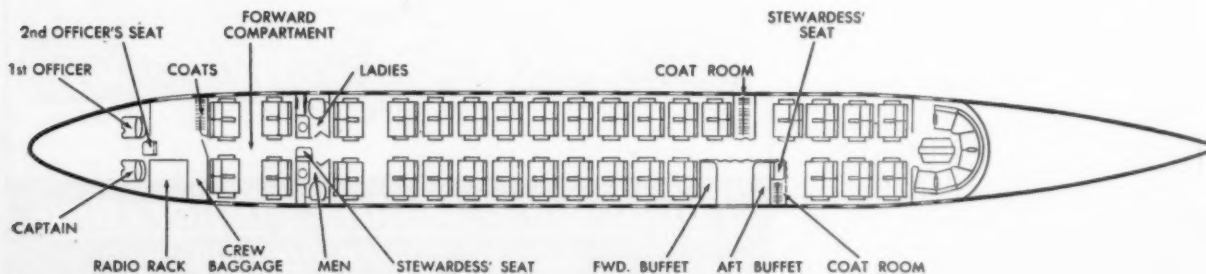
1,194	1,196	1,189
1,181	1,040	1,197
915	1,187	49

Average—1,003

Over a three-month period total engine overhaul costs averaged \$8,110 per engine. This broke down into \$1,479 for labor and \$6,631 for materials. Dye is quick to point out that any specific cost figures are deceptive. Replacement parts requirements have a tendency to run in cycles. In one recent month the R-2800 engine overhaul costs, based on about seven engines, which is representative of the flow through Delta's shops, was \$10,868.

No one at Delta can cite specific steps to which to attribute the relatively trouble-free engine operation. Dye gives first and foremost credit for any success to hard working, contented employees. Delta is probably the biggest scheduled airline in this country which has no labor union among its maintenance employees. There is strong mutual respect between management and labor, and this is reflected throughout the organization.

Some observers have superficially credited Delta's trouble-free engine ex-



FLOOR PLAN of Delta's DC-7's, scheduled for early 1953 delivery.

perience to low-power operation. This is not the case. Delta pilots undoubtedly contribute to reliable engine service by observing operating limitations, which is not universal pilot procedure, but no special considerations are given the engine. Climb is at 1,400 horsepower and cruising is at 1,080 horsepower. Nor are Delta's routes favorable for engine operation, average flight time being only one hour, 45 minutes.

Unusual respect for the BMEP (brake mean effective pressure) gauges marks Delta's R-2800 engine operation and may be significant. Ever since DC-6 operations were started these gauges have been kept operating. Delta will pull the engine nose case to correct BMEP gauge trouble.

This has paid off in many ways. Ignition troubles are often evident on the BMEP gauge before they show with an ordinary magneto check. Delta's experience shows that you can have both plugs inoperative in one cylinder and one in another and still pass the 100 revolutions per minute mag drop check, yet the BMEP gauges show this discrepancy.

Limits Cylinder Time

Some airlines have had trouble with R-2800 cylinders. Delta has voluntarily limited total cylinder time to 3,800 hours. A change to cast iron valve guides is also underway, as is a switch to valves with shot-peened stems. Another policy has been to replace the fixed gear in the nose planetary group and BMEP cams during each overhaul.

Delta uses Champion R-37S-1 plugs in all its R-2800 engines, with only new plugs used in this engine. Overhauled plugs are passed on to the R-2000 and R-1830 engines. Delta is testing AC 171 plugs and may decide to use two different plugs in one cylinder, a plan under consideration by several lines.

Conversion of the earlier CA-15 series engines to the more recent CB-16 version is well underway at Delta to provide complete interchangeability between DC-6's and the company's Convair 340's when operations are started with the new twin-engine plane.

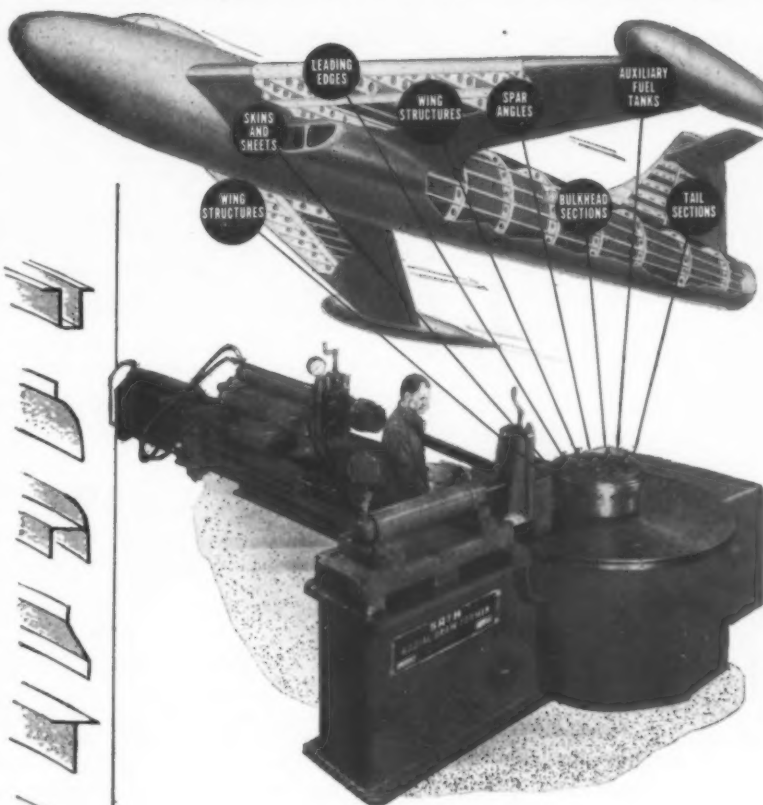
Throughout Delta a general air of anticipation has been created by the newly ordered Douglas DC-7's which the company will receive in early 1954. This plane will introduce the Wright R-3350 Turbo Compound engine into the airline, with all the anxiety accompanying any new and extensively different engine. It will require new overhaul facilities, new procedures, and considerable know-how.

Judging from its record, Delta will be more than ready to meet the challenge.

JULY 21, 1952

LEADING AIRCRAFT MANUFACTURERS ARE BUYING

BATH RADIAL DRAW CONTOUR FORMERS



AIRCRAFT FUSELAGE AND JET ENGINE COMPONENTS IN PRODUCTION QUANTITIES ... FAST AND ACCURATE!

The versatility of the Bath Radial Draw Contour Former makes it a natural for forming aircraft fuselage, jet engine and guided missile parts. Stretch and compression formed, the parts pass rigid inspection. Cross sections of roll-formed and extruded parts as shown at left, are faithfully maintained throughout varied bends.

The performance range extends from shallow bends in formed strip stock and sharp bends in flanged extrusions to full circles and spirals in metals from 24ST aluminum to titanium of 95% purity.

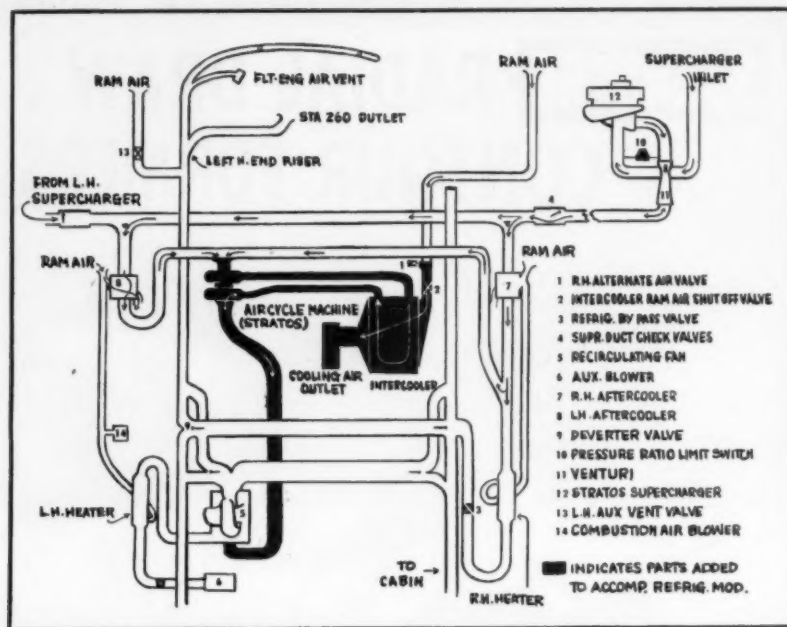
Machine capacities from 12½ to 200 tons in standard Models. Write for catalog CF-352.

THE CYRIL **BATH** COMPANY

Manufacturers of Metal Forming Machinery

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SCHEMATIC DIAGRAM of air conditioning system with Stratos units.

New Cooling Unit for PAA L-049's

Stratos Model B-60-3 refrigeration unit to be featured, following satisfactory service tests.

INCREASED passenger comfort through modernization is the theme behind Pan American World Airways' decision to modify its Lockheed 049 aircraft to include a Model B-60-3 air cycle refrigeration unit (expansion turbine) manufactured by the Stratos Division of Fairchild Airplane and Engine Corporation.

The original 049 when received by Pan American incorporated only an air recirculating system. Pressurized air from the supercharger on each outboard engine was pumped through the left- and right-hand heater ducting to the cabin to satisfy winter operating needs, but for summer operation there was nothing to cool the air. The recirculating fan merely kept it in motion.

Fresh Air

A subsequent modification of the original system by Pan American provided routing of pressurized air from both superchargers over the right-hand heater, and the introduction of fresh air by the recirculation fan through the left-hand heater ducting. This improved the situation some, but still did not offer the cooling needed.

Early this year, with the benefit of experience gained in the operation of a similar system in its Convair 240 air-

craft, Pan American installed and flight tested the Stratos model B-60-3 refrigeration unit in one 049 airplane. The test resulted in the placing of an order for units to equip the balance of the eighteen-aircraft fleet. Using the same type heat exchanger that is installed in Convairs, the modification will provide the commonly referred to "bootstrap" principle of expansion cooling. A sideline to the installation of the Stratos unit



CUTAWAY VIEW of Stratos model B-60-3 refrigeration unit.

will be the provision for individual, controllable air outlets for each passenger.

The B-60-3 unit consists of a secondary compressor and an expansion turbine on a common shaft, installed with a heat exchanger which is not supplied with the assembly. For its operation either of the two Stratos S60-5A superchargers now installed will supply 62 pounds per minute of air at sea level.

Secondary Compressor

Supercharged air entering the refrigeration unit compressor inlet is additionally compressed by the turbine-driven secondary compressor. It then enters the heat exchanger where the heat of compression is removed. The cooled air next enters and drives the turbine, where it is cooled by expansion. The cold air leaving the turbine is fed through the recirculating fan to the cabin air outlets. The "bootstrap" principle involved is one of taking expansion-turbine energy to pre-compress the air before it reaches the turbine, thereby considerably increasing the net cooling for a given unit supply of air pressure.

Some Features

Said to be the first model 049 aircraft so equipped, some features of the Pan American modification include:

- No changes in the superchargers will be required.
- No wing ducting modification will be necessary.
- Only minor modification of cabin air conditioning ducting will be made.
- No scheduling delays are anticipated, as the rework will be done during routine maintenance service.

The superchargers now operated in the aircraft have an overhaul period of 2,000 hours. It is expected that the refrigeration units will provide service periods of about 2,500 hours between overhauls.

Installations are being made at Pan American's Miami overhaul base. The engineering has been directed by Fletcher Bennett, Pan Am's engineering supervisor. Two aircraft have been modified to date. Although Pan American is the only airline that has ordered the Stratos equipment, interest is said to have been shown by other 049 operators.

More Power for Pipers

Piper Aircraft Corporation has substituted the more powerful 135 hp Lycoming engine Model 0-290-D-2 for the 125 hp Lycoming in the Pacer, Tri-Pacer, Super Cub, and PA-18A.

The new engine has put the Pacer and Tri-Pacer in the 130 mile-an-hour class, and has generally increased speed and carrying power in the four models.

A MAJOR PRODUCER

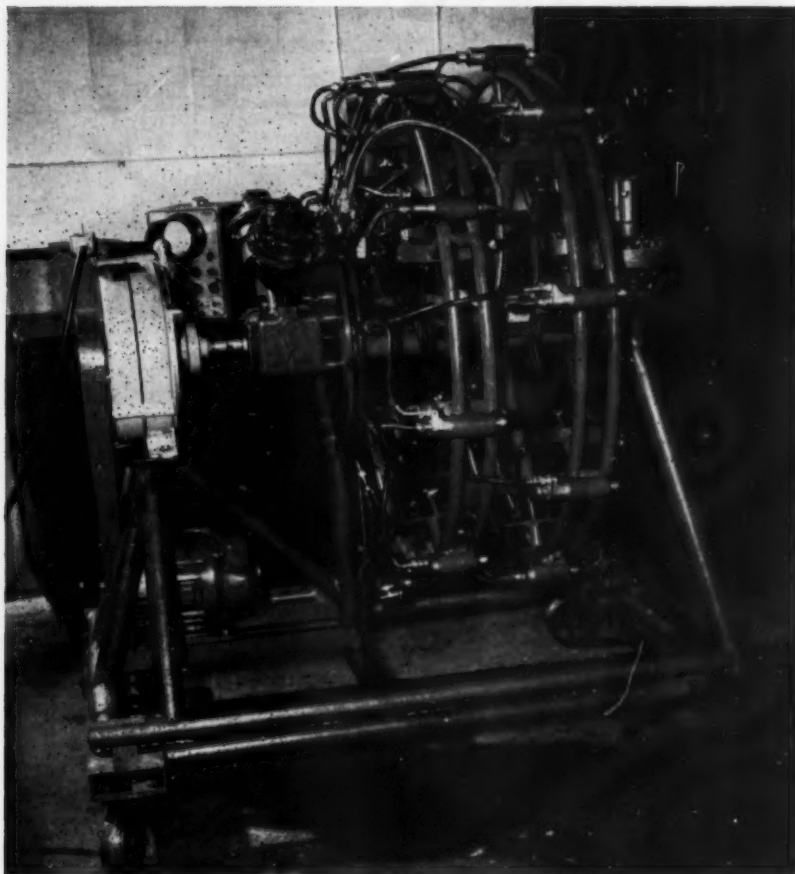
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Air Fleet..

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To the distinguished list of America's first line aircraft companies, suppliers to the nation's expanding military and commercial air fleet, a new name has been added.



Maintenance Bulletin Board



Test Stand Licks Ignition Problems

An ignition test stand designed and built by T. E. Bourke, superintendent of engine overhaul for Northeast Airlines, helps locate hard-to-find mechanical problems with low tension ignition on P&W R-2800-CA-18 engines in Convair aircraft.

The stand permits testing of the entire ignition system, including harness

and leads, in one operation. A single bomb-test adapter makes it possible to fire a questionable plug using the magnetos as a source of energy.

The magneto mounting pad and drive adapter is designed to accommodate any of the flange-mounted magnetos used with current P&W or Wright nine-, 14-, or 18-cylinder engines.

Hidden Ingredients Danger Continues

Despite never-ceasing words of caution, the problem of care in the handling of toxic cleaning agents is still here. A recent National Safety Council newsletter tells of the death of an aircraft cleaner which an investigating coroner's jury reported occurring five days after exposure to a rug-cleaning preparation said to contain 27% tri-

chloroethylene.

The deceased and two other cleaners fell ill and were hospitalized the day after their exposure.

The day-to-day airline operation necessitates use of many dangerous and toxic materials, but they are used under controlled conditions, including

ample precautions for the protection of employees' health.

The trade-name products with the concealed formulae present the current problem. The answer appears to lie in regulations which will require proper labelling of such products. The National Safety Council reports inspecting three one-gallon cans of the cleaner involved and finding no word of caution on any of them.

Out-of-Service Costs Given to Mechanics

Some interesting figures calculated by American Airlines to promote cost-conscious mechanics show the hourly revenue lost when an aircraft cannot be used for intended schedules.

The 33 hours it took to repair a DC-6 flap which was lowered into a workstand cost \$7,590, or \$230 an hour in lost utilization. The out-of-service Convair loses about \$75 an hour, and the DC-4 about \$60.

Grease For Skydrol Units

Douglas Service recommends keeping a tube of Allube Hi Lo MS No. 1 grease handy in maintaining seals and threads in Skydrol-filled aircraft hydraulic systems. Developed from a Skydrol base, the lubricant must be used in place of the petroleum types. It is very effective in protecting seals during installation, making assembly easier. It can also be used where thread lubrication is necessary, but should be applied sparingly to avoid accumulation in the system.

Non-Glass Mirrors Used

The "seven-years-hard-luck" story may be on the way out and maintenance costs on the way down.

Use of non-glass unbreakable mirrors, which offer reflectability equal to glass and weigh one third as much as glass mirrors, is increasing in the aviation industry. Flexmir mirrors, manufactured by the Flexmir Metalizing Corporation of Newark, N. J., reports acceptance by The Glenn L. Martin Company, Goodyear Aircraft, Northwest Airlines, Braniff Airways, Chicago & Southern Air Lines, and the U. S. Navy. Flexmir features shock resistance, mar resistance, and non-distortion in temperatures from -40° to 160° Fahrenheit.



You can look to Canadair as a permanent, reliable, fully authorized source for spare parts for C47/DC3 type aircraft.

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CAS2-19UST

New Prop-Reversing Circuit Directive

Extensive modification of the propeller-reversing circuits is required by three airworthiness directives recently issued by CAA.

Affecting all postwar transport-type aircraft manufactured by Lockheed, Douglas, and Consolidated Vultee which use Hamilton Standard propellers with reversing features, the directives concentrate on isolation of the reversing circuits to prevent inadvertent actuation of the reverse solenoid valves. Directives requiring similar modification of Boeing and Martin aircraft so equipped are being prepared and will be

issued soon, according to CAA.

Deadlines for starting and completing the modifications are August 1, 1952, and August 1, 1953, respectively. Repetitive maintenance checks at 350-hour intervals are required to insure that the reverse safety switches open when the throttles are moved forward out of the reverse position.

Revised operating procedures specify that precautions be taken to insure that inadvertent reversing does not occur during unfeathering operations. These include:

- Use of wing or landing lights to

observe propeller operation;

- Watching the propeller during unfeathering and releasing the button when rotation starts;

- No use of the tachometer as a guide for determining when unfeathering is to be terminated.

The high-pressure hydraulic circuit bypass sponsored by the Air Line Pilots Association (AMERICAN AVIATION, May 26) is under development and may be made the subject of a future directive.

Cord Cuts Door Damage

A \$50 award has been made to American Airlines mechanic Waldemar Smith, based in Chicago, for design of a simple Douglas DC-6 and DC-6B cargo door hold-back which eliminates most of the broken, bent, and sprung door hinges on these planes.

A 10-inch section of bungee cord with hooks at either end keeps the door hold-open hook firmly in the fuselage socket and prevents the door from slamming shut or open against the hinges. AA estimates a 50% reduction in this type damage as a result of this suggestion.

Low-Cost BMEP Lines

Original heated BMEP lines on Chicago & Southern's Lockheed 649 aircraft, which cost \$105 each, were recently replaced with a new line costing about \$23.

In the changeover, which began back in February, the heated BMEP line and the prop deicer line exchanged positions on the built-up engine, to facilitate installation of the new line. The heated line is energized through the left cowl flap actuator circuit, and operating precautions to protect it from permanent damage require that the circuit breaker be opened at the termination of a flight.

LAS Lodestar Service

Operators of Lockheed Lodestar aircraft will be assured of maintenance service, at least for the last six months of 1952. Lockheed Aircraft Service has announced that 50,000 work-hours have been allocated at its Burbank, California, base to meet the needs of private and commercial Lodestar owners.

CAA Maintenance Film

Preventive maintenance of aircraft, its economy and safety benefits, are stressed in a new CAA film, "An Ounce of Prevention," now available for loan from regional offices.

The 16 mm color picture with sound lasts 34 minutes. Contact local office of Aviation Safety for details.



ROCKS STILL DO LOTS OF DAMAGE TO PROPS SO REMEMBER THAT AND SELECT A RUN-UP POSITION THAT IS FREE OF ROCKS.

Chicago & Southern used the above cartoon in its Maintenance News to make a valid point about the damage rocks can do.

TOLEDO'S "GLASS FLEET" OF EXECUTIVE AIRCRAFT

Uses Dependable

CHAMPIONS

This fleet of Executive Aircraft, operated by Toledo's great glass companies, maintains a heavy schedule of year 'round activity. The chief pilots, as well as the maintenance personnel, know the importance of good spark plug performance in keeping this fleet "on the go." That is why the engines of all of these aircraft are equipped with dependable Champion Spark Plugs.



"No other spark plugs perform like Champions in our DC 3 and Twin Beech. The DC 3 is equipped with type R37S-1 and the Beechcraft uses the RC26S. These Champion Spark Plugs are removed for servicing only *once* between overhauls. That's real performance!"

William A. Merchant, Chief Pilot
OWENS-ILLINOIS GLASS CO.



"We've eliminated spark plug troubles since we standardized on Champions. The type R37S-1 has given excellent service in our Lockheed Lodestar."

G. A. Anderson,
Chief Pilot
OWENS-CORNING
FIBERGLAS CORP.



"Comparative performance and economy tests pointed the way to the Champion R37S-1 for our DC3 and the RC26-S for the Twin Beech. You can depend on Champion Spark Plugs—all the way!"

C. Tracy Service, Chief Pilot
LIBBEY-OWENS-FORD GLASS CO.



CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

JULY 21, 1952

45



Taxiway study being conducted by University of California's Institute of Transportation and Traffic Engineering at San Francisco Airport utilizes motion picture camera mounted on United Airlines DC-3.

Relative movement of aircraft with respect to grid lines painted on test area is photographed. Tests were undertaken at suggestion of CAA to develop proper curvature radii of taxiways for 50 mph speeds.

AF Engine Job to PAA

Beginning September 1 Pan American World Airways will undertake overhaul of an additional 2,400 Pratt & Whitney R-1830 engines under contract with the Air Force. Work will be done at PAA's Brownsville, Texas, shops at the rate of 200 engines per month. Engines are for Air Force C-47 aircraft.

Flying Tigers Defend USAF Plane-Lease Policy

The Flying Tiger Line will pay the Air Force rent amounting to almost three times the surplus selling price of its four leased Douglas C-54 aircraft by the time the present lease expires, according to Robert W. Prescott, president.

Explaining that surplus sale prices of C-54 aircraft ranged from \$75,000 to \$125,000, depending on model at the time the lease policy was initiated, Prescott defended the Air Force lease policy after an attack on it by Representative Sterling Cole (R., N. Y.), who termed

it a disservice to the American taxpayer. Calling the lease policy a "wise and farsighted program," Prescott noted four things it has accomplished:

- **Better monetary return** to government than afforded by surplus sales.
- **Retention** of Air Force control for instant return in event of need.
- **Avoidance** of deterioration to be expected if aircraft were stored by Air Force.
- **Strengthening** of civil air industry, the value of which in event of war is obvious.

Prescott felt it conceivable that the government might even be better off leasing aircraft free to operators, who would keep them in an airworthy condition, rather than allow them to deteriorate on a surplus-storage field.

AF Contract to Aerodex

An undisclosed number of twin-engine transports will be reconditioned for the Air Force, according to a recent overhaul contract awarded to Aerodex, Incorporated, of Miami, Fla.

Spearman to Head Hydraulic Conference

Non-inflammable hydraulic fluids and their current status of service will be a major interest at the 1952 Transport Aircraft Hydraulic Conference scheduled for Detroit, Michigan, October 28 and 29.

Sponsored by Vicker's Incorporated, this year's conference will have W. E. ("Bill") Spearman of American Airlines as chairman. Now assistant manager of service engineering for AA, Spearman's previous position was supervisor of systems engineering, which post included aircraft hydraulic system activities.

Other subjects on the agenda are new tubing materials and processes. Several new Vickers designs will be discussed.

Last year's conference, with R. R. Stark of Eastern Air Lines as chairman, attracted eighty representatives, including those of twenty airlines, aircraft manufacturers, oil companies, the Air Force and the Navy.



Spearman

PAA Service Tests New H-F Radio Transmitter

Automatic tuning devices are a feature of the 144-channel, high frequency radio transmitter being service tested by Pan American World Airways in a Boeing 377 Strato Clipper.

Developed by Aeronautical Communications Equipment Company of Coral Gables, Florida, in cooperation with Pan American radio engineers, the ACE transmitter is designed to meet the needs of overseas airline operations. It conforms to specifications drawn up by the Airlines Electronic Engineering Committee of Aeronautical Radio, Inc.

Following the service test installation, Pan American plans to equip its Douglas DC-6 fleet and later its Boeing 377 aircraft with the unit.

In-Flight Collision

An American Airlines Douglas DC-6 escaped with only minor damage after an in-flight collision with a light plane while landing at Love Field, Dallas, Texas.

A broken antenna wire and a small dent in one propeller was the extent of damage to the DC-6. The light plane, a Globe Swift, was demolished, killing its two occupants. AA Captain G. H. Woolweaver said he never saw the light plane.

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Its thunder is freedom's voice

With a roar like a mighty wind, America's new heavy bomber, the Boeing YB-52 Stratofortress, rips across the sky. That is a reassuring sound for the peoples of the free world. It means that our strategic air power — the right arm of peace — will be strengthened by a great new Boeing bomber designed for maximum effectiveness in an age of jet speed and scientific methods of interception.

The Boeing Stratofortress is not only a very large aircraft, but revolutionary in performance. It is streamlined like a javelin and propelled by eight powerful jet engines.

Obviously, the speed and range of the B-52 must remain closely guarded secrets. This photograph reveals none of its vital new elements of interior design and equipment.

First tests of the B-52 Stratofortress

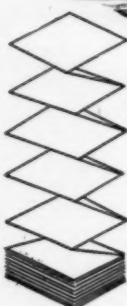
have been an outstanding success. The plane was ordered into production by the Air Force even before testing. Like its speedy teammate, the B-47 Stratojet medium bomber, it has behind it 35 years of Boeing achievement. The accumulated skills and experience that gave our nation the B-17 Flying Fortress and the B-29 and B-50 Superforts have again proved their value in this new giant of the Air Force.

For the Air Force, Boeing also builds the B-47 Stratojets, B-50 Superfortresses and C-97 Stratofreighters; and for the world's leading airlines Boeing has built fleets of twin-deck Stratocruisers.

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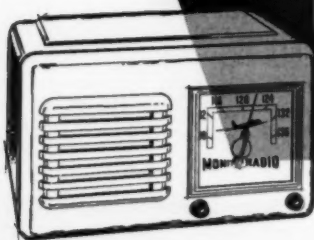
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BURTON BROWNE ADVERTISING

**Cedarhurst Low-Flying
Law Unconstitutional**

The village of Cedarhurst, L. I., has been restrained from enforcing its low-flying ordinance by Federal Judge Leo F. Rayfiel in Brooklyn, who found the act to be unconstitutional, stating that the village's attempt to punish pilots flying at altitudes below 1,000 feet was in "sharp conflict" with Federal laws and regulations.

The Federal judge also signed a preliminary injunction to keep the community from enforcing the local law, which was to go into effect June 15, until a trial this fall. The village is less than two miles from Idlewild Airport.


**Average Daily
Plane Utilization**

INTERNATIONAL

	Jan.	Feb.	Mar.	Apr.
American				
4 eng. pass.	5:13	5:05	5:01	5:17
cargo	5:28	4:19
Braniff				
4 eng. pass.	7:45	7:55	7:46	7:18
C & S				
2 eng. pass.	9:15	8:50	8:46	9:49
4 eng. pass.	8:25	8:36	8:47	8:48
Colonial				
2 eng. pass.	11:06	6:38	3:02
4 eng. pass.	6:11	5:04	5:17	6:38
Eastern				
4 eng. pass.	10:30	10:27	10:23	11:23
National				
4 eng. pass.	9:50	10:10	10:12	10:30
cargo	5:00	...	2:00	3:00
Northwest				
4 eng. pass.	7:32	7:32	7:19	7:21
cargo	4:56	8:32	8:49	9:04
Panagra				
2 eng. pass.	3:53	3:37	3:30	3:31
4 eng. pass.	5:53	6:06	6:02	5:41
cargo	3:52
Pan American:				
Latin American				
2 eng. pass.	3:54	4:14	4:07	4:05
4 eng. pass.	7:13	7:29	7:27	7:37
cargo	3:47	4:34	4:20	3:31
Atlantic				
2 eng. pass.	:27	:27	:28	:35
4 eng. pass.	6:02	6:07	5:49	5:34
cargo	12:37	8:17	9:04	10:55
Pacific				
4 eng. pass.	6:17	5:56	6:18	6:45
Alaska				
4 eng. pass.	5:55	7:38	8:26	8:20
cargo	7:45	6:33	6:53	10:00
TWA				
4 eng. pass.	7:20	6:50	6:49	6:52
cargo	4:57	4:16
United				
4 eng. pass.	5:36	5:34	5:40	5:23

AMERICAN AVIATION

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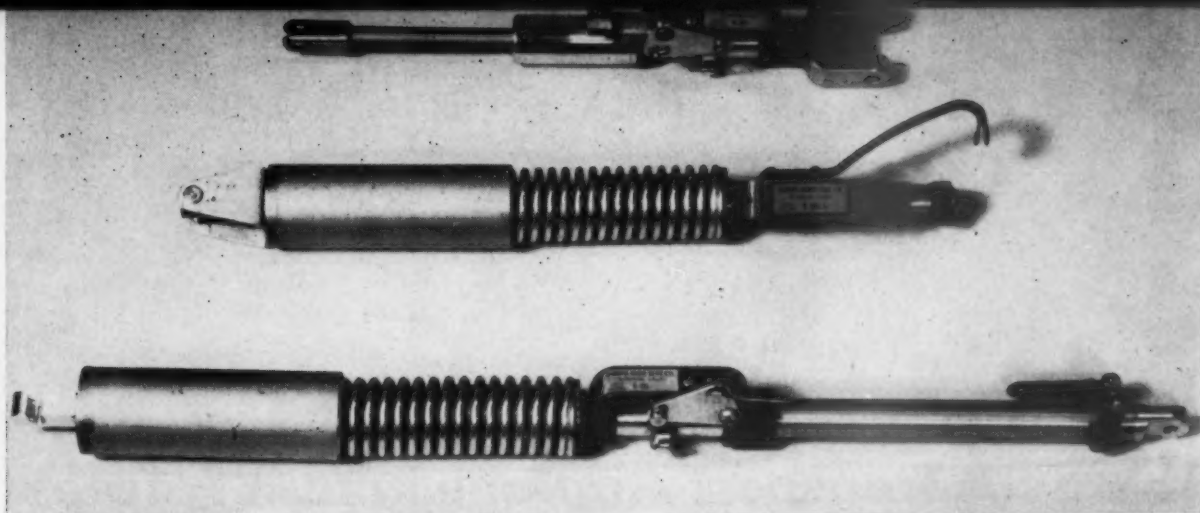


The world's **4100** airline planes
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fly them,
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look to your future markets and
advertise in **American Aviation**
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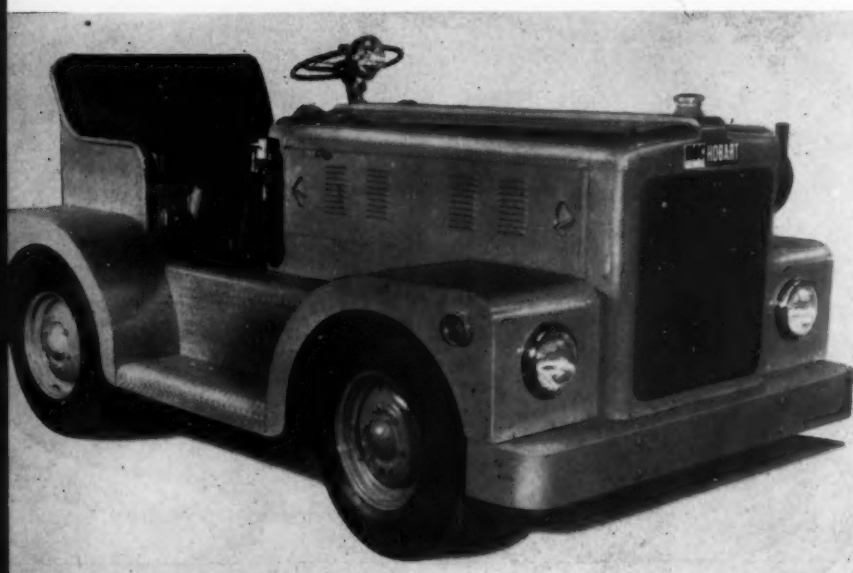




Passenger seat lock being service tested by United, American, Pan American, and Northwest airlines has been tested to over 3,400 pounds without slipping. Secret of mechanical lock lies in coiled shaft spring which self-energizes when compression loads are applied. Lighter than and interchangeable with most locks in use, the Burns-Locks can be installed without modification of seat. Shown top to bottom are units for Boeing 377, Douglas DC-6, and Convair. Address: Burns Aero Seat Company, 3900 Cohasset Street, Burbank, California.



Built-in grounding device for static electricity eliminates shock to operators of carbon dioxide fire extinguishers having loose connections. Address: American La France—Foamite Corporation, Elmira, N. Y.



Ground power unit and tow tractor combined, the Model 871 "Power Pull" is designed to meet the starting needs of the smallest to the largest jet or piston engines. Model 871-CL is a modified version furnishing constant voltage with current limiting for jet and turboprop aircraft. Rated for 1,000-ampere loads, the Power Pull uses a Chrysler 105 hp V-8 engine. Address: Motor Generator Corp., Troy, Ohio.

New Products

Light Weight Solder

A fill-solder suitable for all metal filling has been developed by Alcoa. Requiring 50% less heat than tin alloy solder, "Fil-Soder" is said to build up fast, stay where it is put, and not run or drip when working on an upright surface. Because of its light weight, four ounces will reportedly fill as much space as a pound of other solders.

Address: Aluminum Company of America, 801 Gulf Bldg., Pittsburgh 19, Pa.



Electrode Holder

A light weight, 300-amp. electrode holder, called the Model A-732 TWECOTONG, has been introduced by the Tweco Products Co.

Handling electrodes from 7/32" through 1/16", it features a lightweight high-copper alloy for maximum conductivity and a raised upper lever for ease of handling. Tip end insulators are interchangeable.

Address: Tweco Products Co., P. O. Box 666, Wichita, Kansas.

Rotary Accelerator

A rotary accelerator with a range from 0.1g to 100g for testing or calibrating instruments, electronic sub-assemblies, etc., is manufactured by the Statham Development Corporation. Test objects



Temperature-Sensitive Paints Available

Temperature-sensitive paints, called Thermocolors, for observing the temperatures in metals, glass, brickwork, or ceramic materials, have been introduced in the U. S. by the McLain & Bryson Oil Company. Said to be capable of classifying temperatures from 104° to 1,508° Fahrenheit within an accuracy of nine degrees, Thermocolors are available in 25 colors, 13 of which make a single change at designated temperatures.

Invented in Germany by Dr. Franz Drexler and originally produced by I. G.

Farben, Thermocolors are metallic salts suspended in resin. The color powder is stirred with alcohol and either brushed or sprayed on the surface to be tested.

Among the paint's many applications, it has been used successfully by German aircraft engine manufacturers on internal as well as external parts, providing the needed thermal stress data to permit the redesigning of pistons and cylinders until the desired heat transfer characteristics were obtained.

Address: McLain and Bryson Oil Company, Harriman, Tennessee.



weighing up to five pounds can be accommodated on a 16 inch diameter dural turntable driven by a 1/8 hp, 3600 rpm electric motor through a variable-speed transmission with a range of 0-1000 rpm.

Six solid coin-silver sliprings, each having two silver graphite brushes, are provided for testing electrical devices. Rating of two sliprings is 115 volts, five amperes; four others are rated at 115 volts, one ampere.

A safety glass cover permits direct observation of the equipment while a test is in progress.

Address: Statham Development Corporation, 12411 West Olympic Blvd., Los Angeles 64, Calif.

Sensitive Spray Gun

A spray gun with ultra-sensitive controls for fine spray work has been introduced by the DeVilbiss Company.

Designated type EGA, it is designed for stencilling, blending, highlighting, and decorative work. A medium sized spray

pattern can be adjusted to almost pin-point size for touch-up work. Gun can be used with standard two, four, six, or 16-ounce fluid containers.

Address: DeVilbiss Company, 300 Phillips Ave., Toledo 1, Ohio.



Portable Stock Unit

A portable stock unit mounted on four free-rolling wheels, and called "Porto," has been announced by Service Parts Systems, Inc.

Model 5050W provides 100 individual containers with suspension which permits quick removal for replenishment, cleaning, etc. Dimensions are 62½" high, 21⅝" wide and deep. Construction is 18- and 20-gauge steel.

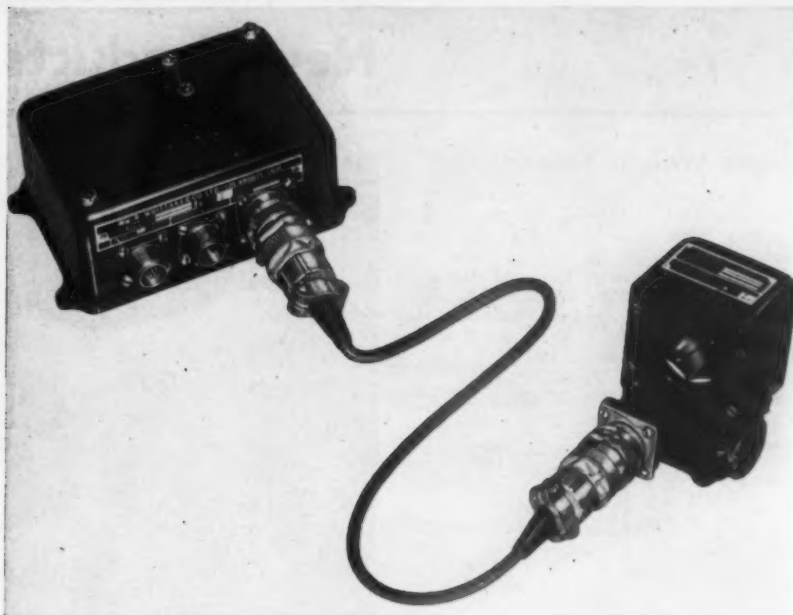
Address: Service Parts Systems, Inc., 15102 Charlevoix Ave., Grosse Pointe, Michigan.

New VHF Unit

A 36-channel VHF transmitter-receiver Model LVTR-36 adaptable for use in both single- and multi-engine executive type aircraft has been announced by Lear-Cal Division of Lear, Inc.

A self-contained, remotely operated, two-way communication system, the LVTR-36 consists of a 5 watt, 36 channel VHF transmitter-receiver and a remote frequency selector switch for instrument panel mounting. Combined in a shock-mounted, ½ ATR rack-sized package, the transmitter-receiver overall dimensions, less mount, are 19⅝" long, 4 15/16" wide, and 6¼" high. Weight is less than 17 pounds.

Address: Lear, Inc., LearCal Division, 11916 West Pico Blvd., Los Angeles 64, Calif.



"Magic Eye" Liquid Monitor

A sensing system to detect the presence or absence of liquid in a hose, tube, or pipe has been announced by the Wm. R. Whittaker Co. Ltd. Using the "magic eye" principle, the sensing unit places no obstruction in the fluid line. Presence or absence of fluid causes an alteration in a path of light between a prism and a set of photovoltaic cells on the opposite wall,

and relays the message through a control box to the cockpit.

Use is adaptable to any clear or translucent fluid under pressures from 0 to 200 psi. Warning of low fuel level and of completed fuel transfer are two of its features.

Address: Wm. R. Whittaker Co. Ltd., 915 N. Citrus Ave., Los Angeles 38, Calif.



Midget Switch

Compact push-button electric switch announced by Micro Switch is so small it will fit inside a walnut shell. Featuring weather- and oil-proof protection and weighing only one ounce, the switch is available as both single- and double-pole assemblies.

Installation and wiring is accomplished by snap removal and replacement

of switch elements in mounting brackets. Switches are rated at five amperes—250 volts ac, and 30 volt dc inductive loads of two amperes at sea level and 1½ amperes at 50,000 feet.

Address: Micro Switch Division, Minneapolis - Honeywell Regulator Co., Freeport, Ill.



Duplicator

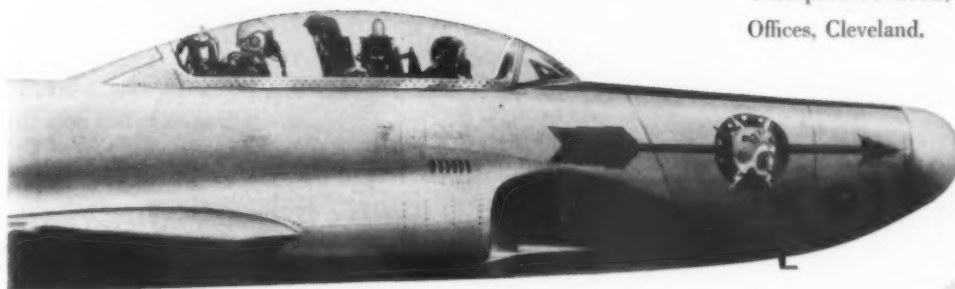
Photo copy machine, called Copi-Stat, for making duplicate blueprints, drawings, specification sheets, letters, etc., is announced by General Photo Products.

Machine involves no developing, washing, drying, darkroom, or chemical fumes. It features duplication of two-sided copy. Available in sizes 8½", 11", and 17". All sizes can be motorized for automatic operation.

Address: General Photo Products Co. Inc., General Photo Bldg., Chatham, New Jersey.



FROM "JENNY" TO JET....



"JENNY" flew 65 miles an hour in World War I. Today's jets do better than 600. Thompson Products has helped in every step of that improvement. Jet power depends on many Thompson parts. The blades and buckets of a jet engine have tolerances $\frac{1}{30}$ that of a human hair. For these and many other hard-to-make parts, Thompson has developed unusual skills in forging, heat-treating, grinding and machining in its 50 years of service to automobile and airplane builders.

Now Thompson is offering all industry its reservoir of skills, people and imagination. Available are special techniques in old fields and in many new ones such as light metals, electronics, powder metallurgy and new methods of making intricate castings. *You can count on Thompson.* Thompson Products, Inc., General Offices, Cleveland.

*You can count on
Thompson Products*

It's been a fast 10 years for PESCO too!

... keeping up with G. E. Jet development

When General Electric completed America's first aircraft jet engine in 1942, and jet-powered flight became a reality, a PESCO fuel pump made certain that it was fed all the fuel it needed.

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Technical Literature

STEEL CASTINGS: Standard specifications for more than 70 designated classes of steel castings are incorporated in a new summary chart compiled by Steel Founders' Society of America, 920 Midland Bldg., Cleveland 15, O.

CROP DUSTING: Prepared by Monsanto Chemical Co., St. Louis 4, Mo., "Safety for Pilots on the Crop Air Drop"



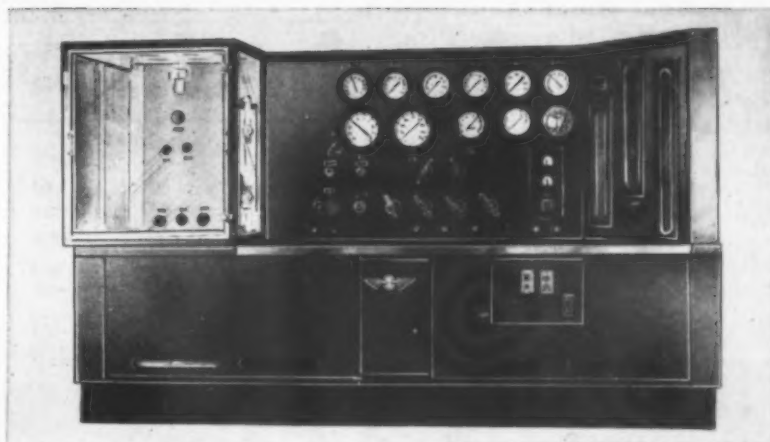
is a pocket-sized booklet which points out the need for proper equipment and procedures to safeguard both pilots and crops. A check list sets forth precautions to be taken, symptoms of possible ill effects from chemicals used, and first aid treatments.

BALL BEARINGS: A catalog containing complete specifications on more than 120 different types and sizes of miniature ball bearings has been issued by Miniature Precision Bearings, Inc., Keene, N. H.

"SCOTCH" TAPE: A 16-page, well-illustrated manual sets forth 24 "Scotch"-brand pressure-sensitive tapes that meet Government specifications for varied purposes. Available from the Minnesota Mining and Manufacturing Co., 900 Fauquier St., St. Paul 6, Minn.

STAINLESS STEEL FASTENINGS: Detailed product specifications to aid in selecting and ordering stainless steel fastenings are contained in a new 20-page catalog titled "Stainless Steel—Right Off the Shelf" issued by the Star Stainless Steel Screw Co., 190 Union Ave., Paterson 2, N. J.

ELECTRICAL CONNECTORS: A new catalog illustrates electrical connectors manufactured by the Minneapolis-Honeywell Regulator Co. for aircraft and other industries. It was prepared by the firm's Aeronautical Division, 2600 Ridgway Rd., Minneapolis, Minn.



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AIRCRAFT BELLOWES: Descriptive folder available from Solar Aircraft Co., 2200 Pacific Highway, San Diego 12, Calif. outlines aircraft bellows designs and applications.

DIMENSIONAL CONTROL AND GAUGING: "Dimensional Control and Gauging Policy," authored by The Sheffield Corp., Dayton 1, O., gathers subjects such as gauging policy, tolerances, reference temperature, gauge specifications, ordnance practice, fixed gauge instruments, etc., illustrations and charts.

MANOMETERS: King Engineering Corp., Box 510, Ann Arbor, Mich., has

a 12-page illustrated manual on manometers available.

ADHESIVES AND COATINGS: Design and production facts on 13 adhesive, coating, and sealer products is incorporated in a 14-page booklet put out by the Minnesota Mining and Manufacturing Co., Adhesives and Coatings Division, 411 Piquette Ave., Detroit, Mich.

CORPORATION BACKGROUND: "The Norden Story" gives history and details concerning production facilities of The Norden Laboratories Corp. White Plains, N. Y., and Norden Instruments, Inc., Milford, Conn.

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PO Draws Cost-Subsidy Line, Sees 'Loss'

The Post Office Department states that it lost \$25,989,369 on domestic air mail service in fiscal 1951. This "loss," however, is after imposition of a number of charges which have been debated in the industry for years.

The PO's cost ascertainment report lists domestic air mail revenue as \$95,425,704 against expenses of \$121,415,073, and further states that 69% of the expenditures represented "service expense" while 31% was "subsidy." This is the first service-subsidy separation by the PO.

On international air mail, the PO showed revenues of \$31,306,067 against expenses of \$77,992,677, or a "loss" of \$46,686,610. It did not separate international subsidy.

Under cost ascertainment, expenses include not only payments to the airlines for hauling the mail, but also such items as handling charges, ground transportation, and an allocation of overall PO expense. Airline officials have long claimed that this practice gives an inflated picture of expenses chargeable to air mail.

For example, another way of looking at the picture would be to compare expenses with the payments to airlines. In fiscal 1951, these payments were \$72,604,687 against revenues of \$95,425,704, or a \$22,821,017 "profit" for the PO.

Internationally, airline pay was \$65,030,288, which would reduce the loss to \$33,724,221.

Of its overall domestic expenses, the PO said that \$83,828,067 was service pay and \$37,586,975 was subsidy. In making the breakdown, it used CAB's figures on administrative separation of the two elements, which were \$31,965,746 service and \$40,638,941 subsidy. These two figures total \$72,604,687, which is pay to the airlines without any allocated costs.

The PO left the CAB subsidy item unchanged and added all costs under service expense. Difference between its \$37,586,975 subsidy figure and the Board's \$40,638,941 represents a payment attributed by the PO to handling international air mail within the U. S. plus a small allocation to penalty mails.

Shields Resigns at C-W

Curtiss-Wright Corp.'s former president and chairman of the board of directors, Paul V. Shields, has resigned as a corporation director, thereby squelching industry rumors that he might return to active management of the firm.



Airline Commentary

By Eric Bramley

THIS MAY BE the lost-baggage story to end all lost-baggage stories.

In November, 1951, an elderly lady was traveling from St. Paul to New York on Northwest Airlines, thence to San Juan via Pan American. Her visit was to be an extended one, so she packed all her worldly possessions into one large bag. In New York, she found that the PAA flight would be considerably delayed, so she took her life savings of over \$2,000 out of her purse and put them in the suitcase so she wouldn't be wandering around Idlewild with a lot of money on her. The bag was again checked for the Puerto Rico flight.

On arrival in San Juan, her baggage was missing. Her son-in-law immediately presented her claim to NWA and PAA. A thorough search was made, and in mid-February, 1952, NWA advised the lady that they couldn't locate it and would settle for the \$100 maximum liability.

For some reason, she never returned the Proof of Loss forms, and nothing was heard from her until June 5 when she called at NWA's St. Paul headquarters. Dave Newton, sales promotion manager, talked to her and decided to try another search, which was again checked June 9, almost eight months after the original loss.

The pay-off: NWA recovered the bag in a public check room at the Airlines Terminal Annex in New York, where it evidently had lain all those months. How it got there is a mystery. The bag was forwarded to St. Paul, where the lady opened it in the presence of airline witnesses. Every article was found intact, and there, big as life, was over two thousand bucks in cold cash.

Another pay-off: The discovery was made on Friday the 13th!

Like all good operations managers, J. H. Tischler, of Capital Airlines' Muskegon station, keeps the head office informed of local developments, such as personnel turnover and other problems. His latest report listed some people who were leaving the company and the reasons for their action—a couple of gals leaving to get married, etc. Then his typewriter slipped, and he reported that one fellow was leaving because he was “dissatisfied with local loving conditions.” (On second thought, maybe the typewriter *didn't* slip.)

Please, fellows, don't send any more stories about the new inflatable bras. Almost every airline in the country is claiming to be the first to have had a gal aboard who suddenly found herself over-inflated as the unpressurized plane went higher. Stories, memos and directives (mostly gags) are cropping up all over.

We will note two for the record. A wag in Pan American's Latin American Division drafted a memo, entitled “In-Flight Hazards,” to stewardesses who may use this type of falsie. It told the girls to inflate the bra only halfway before take-off, so they'll be the proper proportion at cruising altitude.

“Stewardesses making first flights with the inflatable bra may use the captain's air mattress as a guide in establishing pre-takeoff pressure, as the bra and the mattress should have the same resiliency while both are at sea level,” it said. “Old-type inflatables with integrated units may be turned in for rework, which will connect each unit by means of check valve. Thus, in case pressure in No. 1 is lost, pressure will still be maintained in No. 2.”

One of Delta's passengers wrote a kidding letter to Ed Bishop, Miami sales manager, stating that air-minded girls in his office were worried about the situation, and had Delta done any research. With a straight face, Bishop replied that the airline has had a committee working on the problem.

“It was decided that our pilots would receive training in ditching procedures, and during this training it is necessary to learn how to repair rubber life rafts,” he said. “At the same time, our stewardesses are getting specialized training with the Goodyear vulcanizing department . . . All things considered, the committee performed a very necessary job, and the 40-page report, with diagrams, reveals some very interesting findings.”

Such is our coverage of the situation. In closing, a bow to the gentleman who first broke the bra story, Jerry Lederer, of Flight Safety Foundation.

Better Deal for Civil Airports Seen in AF Memo

Air Force concessions that may set important precedents of benefit to all airports having joint civil-military use have been won by the Port of Portland (Ore.) Commission in a case that has arisen at Portland International Airport.

More importantly, as a result of the Portland case, aired several days ago before Sen. Lyndon B. Johnson's (D., Tex.) Preparedness Investigating Subcommittee, Sen. Wayne Morse (R., Ore.) has announced his intention of seeking enactment of legislation in the next Congress aimed at eliminating or modifying the so-called “recapture” clause of the Surplus Properties Act as it applies to airports.

Between now and the convening of the 83rd Congress, Morse said he will hold exploratory talks with the Civil Aeronautics Administration, the Air Force, the Airport Operators' Council and others on the problems of joint use of airports by military and civilians.

Memo of Understanding

Meanwhile, the Port of Portland regards as fairly satisfactory the memorandum of understanding tendered it by the Air Force Secretary Thomas K. Finletter and Assistant Secretary Edwin V. Huggins. The Portland airport problem to which this applies arose in connection with AF occupancy of about 70 acres in the south-center section of the field which the Port of Portland would like to use as a new terminal area.

The city offered the AF a substitute site of about 70 acres in the southeast portion of the airport, but the Air Force insisted that it would move to the proposed location only if the city would pay the moving costs, which might run as high as a million dollars.

The Air Force memorandum, setting forth terms and conditions under which the AF is willing to negotiate with the Port of Portland Commission, covers the following main points:

- Air Force will waive, subject to changed conditions created by a declaration of war, the exercise of its right to exclusive use of the area north of the new runway.

- Subject to securing informal concurrence of the General Accounting Office, AF agrees to work out an equitable arrangement with Port of Portland Commission, by way of amendment to present lease or otherwise, for payment of a fair sum as landing fees for use of such facilities as runways and other common user facilities.

- Air Force will not construct any permanent facilities in south-central portion pending agreement between the government and the Commission for use of this area as a new terminal site.

CAB Takes Up European American Bid

The reopened Trans-Atlantic Cargo Case will be expanded by the Civil Aeronautics Board to include European-American Airlines' bid for a trans-Atlantic all-cargo certificate. Decision was made at the request of President Truman after CAB denied the carrier's application in the North Atlantic Certificate Renewal Case early this month.

Previously, after denying similar applications of Seaboard & Western Airlines and Transocean Air Lines, CAB reopened the case to consider the requests on the basis of more current information. This too was done at the direction of President Truman. S&W and Transocean are non-scheduled lines but have been active in the overseas field for years.

European-American is a non-operating company with strong financial backing. All three lines propose to operate the cargo service without mail pay or subsidy. In directing that Euro-

pean-American be given another opportunity to present its case, Truman wrote to the CAB:

"It is just and in accord with the reopening of the U.S.-Europe-Middle East Cargo Service Case to afford European-American an equal opportunity, if it so desires, to have a further hearing upon its application and reconsideration thereof and to dispose finally of the applications of Seaboard & Western, Transocean and European-American concurrently.

"I therefore request the Board promptly to take all appropriate action to give European-American an opportunity for further hearing upon its application and for reconsideration of the decision thereon concurrently, with like action upon the applications of Seaboard & Western and Transocean, and to submit the Board's decision upon reconsideration of all three applications to me for my approval at the same time."

Robinson Granted Seven-Year Renewal

Robinson Airlines' local service certificate has been renewed through June 30, 1958, by the Civil Aeronautics Board in the second long-term renewal for a local carrier in the past month. In addition to commending the carrier for its outstanding operating record, CAB expressed enthusiasm for Robinson's switch from debt to equity financing and utilized the occasion to make general industry observations in this regard.

"We are convinced," Board said, "that primary reliance on equity capital rather than debt is desirable for both local service and trunk carriers. Transportation as a whole, and air transportation in particular, as we have seen in the not too distant past, is subject to sharp contractions during the recession phase of the business cycle.

"During such periods, a capital structure which includes extensive reliance on debt, with its fixed obligations that must be met when due, inevitably places the carrier in jeopardy of bankruptcy. Such risks are substantially reduced when the carrier is soundly financed with equity securities; for equity capital, with its freedom from fixed charges, will act as a cushion against economic adversity."

These remarks were voiced again by CAB Vice-Chairman Oswald Ryan in a rare tribute to Robinson immediately after the renewal decision was an-

nounced. Addressing the company's employees at their annual meeting in Ithaca, N. Y., Ryan said Robinson's "excellent operating record" and its financing accomplishments "very largely influenced the decision of CAB in renewing the certificate on a long-term basis."

UAL and WAL Present Final Arguments to CAB

In one of the few major route extension cases in progress during the current era of interchanges and mergers, Western Air Lines and United Air Lines last week presented final arguments to the Civil Aeronautics Board on proposed new services between Twin Cities and California.

Western urged the Board to approve its bid for a direct route between Rapid City, Casper, and Salt Lake City which, in addition to providing new airline service to those points, would provide a more direct link between Western and the portion of its company which once operated as Inland Air Lines.

United wants an extension of its Los Angeles-Denver route to Twin Cities. Also involved in the case are several interchange possibilities: one between Twin Cities and California via Kansas City, involving Mid-Continent and TWA; the other via Denver, involving Western and United.

TWA and Mid-Continent openly favor their interchange and three days before the oral argument submitted an interchange agreement. CAB Examiner William J. Madden recommended the United-Western interchange, but the carriers favor their route applications.

Western's proposal touched off one of the greatest legislative pleas in recent years when eight Senators and Representatives from four States appeared personally before the Board urging approval of the application. Also supporting the need for the service, although not taking sides, was the Department of Defense, which cited a "most vital" military need for direct commercial air transportation between the large B-36 base at Rapid City and its prime source of supply, Hill Field, located near Salt Lake City.

CAB DECISIONS

- Six competing airlines and four labor groups granted intervention in Delta-C&S Merger Case, but a three-man stockholders' group was denied participation for "lack of substantial interest."

- Purdue Aeronautics Corporation granted a one-year exemption to conduct interstate charter services with two Douglas DC-3 aircraft, subject to restriction against either plane operating more than 1,000 hours per year in charter service.

- Air Transport Associates granted limited intervention in Alaska Airlines Mail Rate Case in one of few cases where non-scheduled line has been admitted to mail-rate proceedings.

- Southwest Airways granted temporary authority to suspend service at Vallejo-Napa, Calif., pending replacement of station equipment destroyed in recent fire.

CAB CALENDAR

July 21—Hearing in Pacific-Northwest-Alaska Tariff Investigation. Portland, Oregon. (Docket 5067 et al.)

July 22—Hearing in Trans-Texas Airways Segments 2 & 6 Renewal Case. Corpus Christi, Texas. (Docket 5233 et al.)

July 28—Hearing in Braniff Airways Domestic Final Mail Rate Case. Washington. (Docket 5142).

July 31—Oral argument before the Board in E. W. Wiggins Renewal Case. Washington. (Docket 5055 et al.)

Aug. 11—Hearing in Large Irregular Air Carrier Investigation. Washington. (Docket 5132 et al.)

Aug. 11—Hearing in Delta-Chicago & Southern Merger Case. Washington. (Docket 5546).



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SUMMARY OF U. S. DOMESTIC AIRLINE REVENUES AND EXPENSES FOR APRIL, 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUNDS & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE INCOME TAXES
American	\$ 14,551,566	\$ 12,568,317	\$ 624,168	\$ 307,491	\$ 749,571	\$ 129,697	\$ 60,110	\$ 12,609,150	\$ 6,534,638	\$ 6,074,512	\$ 1,942,418
Braniff	1,317,271	1,201,091	64,994	28,742	40,807	9,020	•••••	1,388,026	688,797	699,229	-70,755
Capital	3,118,316	2,764,474	79,357	92,588	74,956	17,592	37,298	3,063,631	1,455,749	1,607,882	54,665
Caribair	82,773	63,820	12,346	•••••	2,377	649	925	81,783	33,209	57,574	999
C & S	1,141,801	1,021,909	52,539	24,979	28,777	9,206	•••••	1,037,700	499,808	537,892	104,101
Colonial	394,151	319,058	59,485	4,711	4,974	1,661	1,084	463,726	193,512	270,214	-69,575
Continental	805,944	652,934	98,482	7,477	17,518	4,537	17,304	789,711	399,850	389,861	16,233
Delta	2,471,443	2,215,591	83,236	30,547	73,312	31,267	•••••	2,109,476	1,070,126	1,039,350	361,967
Eastern	10,157,041	9,475,816	230,220	128,586	106,790	165,475	8,391	8,959,009	5,089,045	3,869,964	1,198,032
Hawaiian	343,542	254,552	39,261	9,971	32,941	3,963	1,667	335,905	130,136	205,769	7,637
MCA*	817,936	667,489	105,592	9,526	13,459	5,342	11,716	809,685	388,323	421,362	8,251
National	2,514,482	2,260,175	68,234	21,304	98,245	44,947	2,402	2,168,178	1,066,989	1,101,189	346,304
Northeast	494,881	374,835	98,010	9,127	9,529	1,941	68	582,752	246,860	335,892	-87,871
Northwest	2,938,450	2,451,176	229,696	61,814	88,214	15,163	22,352	2,972,505	1,467,360	1,505,145	-36,785
Trans Pacific	149,951	98,462	15,783	733	2,518	842	29,443	136,688	51,555	85,133	13,263
TWA	8,700,515	7,579,278	414,523	183,697	337,134	61,102	13,579	7,913,860	4,041,328	3,872,532	786,655
United	11,328,898	9,454,973	783,887	279,636	468,494	87,966	71,771	9,522,819	4,256,815	5,266,004	1,806,079
Western**	1,508,765	1,325,401	58,147	21,321	26,389	8,097	339	1,294,058	593,588	702,470	234,687
TOTALS	62,837,708	54,789,351	3,117,960	1,222,250	2,176,005	598,467	278,449	56,238,662	28,205,688	28,032,974	6,599,046

* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Pacific Northwest. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.

** Western's figures include Inland's operations for period April 1-9, effective date of complete absorption of Inland by Western.

NOTE: These figures are taken from monthly reports filed by the airlines with CAB. Data are tentative and subject to later change.

U. S. INTERNATIONAL AIRLINE REVENUES AND EXPENSES FOR APRIL, 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	U. S. MAIL REVENUES	FOREIGN MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE INCOME TAXES
American	\$ 430,152	\$ 354,018	\$ 10,214	\$ 8,287	\$ 219	\$ 34,007	\$ 5,599	\$ 443,006	\$ 238,943	\$ 204,063	\$ -12,854	
Braniff	609,739	415,247	162,272	7,994	•••••	31,524	11,896	819,124	371,124	448,010	-209,385	
C & S	386,049	197,780	154,439	1,337	•••••	21,733	6,440	287,128	136,294	150,834	98,921	
Colonial	134,415	123,263	4,998	1,070	•••••	3,270	646	150,176	60,455	89,721	-15,761	
Eastern	546,475	394,498	26,328	•••••	•••••	10,442	6,895	108,006	468,031	312,518	155,513	
National	127,905	119,785	763	•••••	1,361	4,910	1,086	175,515	55,291	120,224	-47,610	
Northwest	1,348,598	640,892	316,706	51,296	7,066	219,937	8,098	69,672	1,688,495	670,121	1,018,374	
Panagra	1,252,150	1,016,424	51,900*	44,468	•••••	91,378	30,030	299	1,305,075	602,897	702,178	
Pan American	5,424,472	3,803,188	602,250	118,387	•••••	678,173	110,746	28,403	6,190,808	2,723,872	3,466,936	
Latin Amer.	5,607,474	3,419,679	1,142,910	221,801	•••••	523,685	125,324	95,580	5,379,963	2,627,303	2,752,660	
Atlantic	3,495,488	2,044,534	932,497	90,605	•••••	306,108	41,647	25,003	2,964,983	1,728,231	1,236,752	
Pacific	473,999	269,209	94,200	•••••	•••••	104,498	4,613	•••••	476,764	240,553	236,211	
Alaska	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	
TWA	2,219,943	2,512,473	-924,495	258,162	•••••	288,327	55,425	•••••	3,602,473	1,688,443	1,914,030	
United	590,312	506,270	50,603	•••••	•••••	20,069	3,393	•••••	812,784	475,889	336,895	
TOTALS	22,647,171	15,817,260	2,625,585	833,307	8,646	2,338,061	411,798	326,923	24,764,325	11,931,924	12,832,401	-2,117,154
* U.S. mail pay accrued on basis of temporary mail pay rate order of October 17, 1951.												

SUMMARY OF U. S. INTERNATIONAL AIRLINE TRAFFIC FOR APRIL, 1952

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	U. S. MAIL TON-MILES	FOREIGN MAIL TON-MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES	REV. TRAFFIC AVAILABLE TON-MILES	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMP. LISTED
American	9,874	7,181,000	12,099,000	59.35	13,817	4,546	534	165,929	952,302	1,655,539	57.52	237,949	239,963	99.16
Braniff	2,527	5,454,000	14,334,000	38.05	32,433	6,254	•••••	86,488	742,073	2,063,721	35.96	337,104	354,890	94.99
C & S	2,359	2,842,000	3,013,000	44.73	3,051	741	•••••	88,808	388,069	879,614	44.12	137,606	139,266	98.81
Colonial	2,934	2,274,000	3,708,000	61.33	1,504	415	•••••	8,809	256,671	445,371	57.63	71,523	51,036	99.81
Eastern	6,424	8,901,000	15,617,000	56.99	35,104	•••••	•••••	47,463	1,005,419	1,714,879	58.62	263,420	242,080	97.30
National	7,316	1,895,000	3,561,000	53.22	1,440	•••••	3,602	23,472	219,998	448,577	49.04	63,350	62,880	98.51
Northwest	5,625	9,037,000	17,151,000	54.63	129,456	33,657	15,078	706,521	1,851,554	2,929,263	63.21	554,273	508,395	97.64
Panagra	9,884	10,651,000	17,624,000	60.43	35,972	23,804	•••••	391,030	1,428,633	2,464,101	57.98	488,237	489,699	99.62
Pan American	65,572	59,598,000	106,183,000	56.13	247,677	55,278	•••••	2,094,092	8,225,273	13,829,476	59.48	2,410,509	1,901,081	99.00
Latin Amer.	32,789	43,130,000	67,287,000	64.10	457,667	122,458	•••••	1,268,794	6,629,422	9,630,489	68.78	1,310,869	1,313,610	95.39
Atlantic	7,243	26,897,000	42,137,000	63.83	336,082	58,543	•••••	621,262	3,956,346	6,961,969	56.97	858,754	849,376	99.99
Pacific	3,975	4,394,000	11,177,000	39.31	39,429	•••••	•••••	464,213	976,385	1,799,216	54.27	266,268	257,150	99.98
Alaska	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••	•••••
TWA	12,113	28,540,000	42,975,000	67.03	358,873	137,931	•••••	525,943	4,167,231	6,059,701	68.77	1,045,055	1,046,473	99.34
United	3,723	9,219,000	12,972,000	71.07	67,641	•••••	•••••	61,868	1,107,905	1,831,967	60.48	246,022	255,780	96.19
TOTALS	172,358	220,013,000	369,438,000	59.55	1,762,146	442,627	19,214	6,354,692	31,911,281	52,713,883	60.54	8,290,919	7,707,663	97.65

* Includes air parcel post.

NOTE: Figures include both scheduled and non-scheduled operations. Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not its Canada for Braniff to South America. C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

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...are the elements that provide complete precision service and productive teamwork, that gets the job done and done right. For the Skills, Grand Central Aircraft Co. takes pride in each and every employee. Together with our Facilities Grand Central is doubly proud, to share with our employees in the credit, for our B-47 modification assignment, as a member of a team that has such a high national rating in the aircraft industry.

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GLENDALE, CALIFORNIA • • • TUCSON, ARIZONA

Grand Central Airport

Municipal Airport

People

OPERATIONS-MAINTENANCE

Captain Leo C. Lorenz, Pan American World Airways' veteran pilot, has taken over as chief pilot of the Rio de Janeiro sector of the company's Latin American Division. He will be in charge of the 38 captains and first officers who fly along the east coast of South America from Trinidad to Buenos Aires.



Lorenz



Romberg

Lars Romberg is now chief project engineer for Scandinavian Airlines System, with headquarters in New York. Romberg replaced **Bo Hoffstrom**, who resigned to take a technical position abroad.

A. J. Markwardt has been named supervisor of communications in the Buffalo area for American Airlines.

N. A. Smith has become Memphis station manager for Eastern Air Lines replacing **C. G. Abel**, resigned. **J. A. Scruggs**, formerly Eastern's operations supervisor at Tampa, is now the company's station manager at Gainesville.

Louis J. Arpin, part-time Link instructor for Bonanza Airlines, has joined BAL on a full-time basis as ground instructor.

Arlindo Moura, 16-year veteran in Brazilian aviation, has been named Braniff Airways' station manager at Rio de Janeiro. **Wuancho Aste**, native Peruvian, is now assistant station manager at Lima for Braniff. Aste transferred from the passenger service department where he had been purser supervisor in Lima.

Captain Robert S. Silver named chief pilot and **Captain Carl W. Rach** named operations manager for Colonial Airlines. Silver has flown as captain for Colonial since 1942, while Rach, who joined the company in 1940, has most recently been director of flight operations.

Captain Herbert F. Jones is now chief pilot for Bonanza Airlines. He continues line flying in addition to his duties.

W. L. ("Larry") Trimble, TWA operations director, European region, has assumed direction of the company's Middle and Far East region also. He continues to maintain his headquarters in Paris.

TRAFFIC & SALES

F. W. ("Mike") Kendall has resigned as international traffic and sales coordinator for Philippine Air Lines at Manila and is now on special assignment to **Col. Andres Soriano**, president of P.A.L.

Cliff M. Ewens has resigned his position as general traffic and sales manager for Trans-Texas Airways. He has not announced his future plans.

John F. Philipp, 22 year airline veteran, is now regional sales manager for Colonial Airlines in Washington, D. C.

Jack Christy has been appointed city sales manager for Western Air Lines at Tacoma, Wash.

David Martin, **Bill Lawrence** and **Bill Kerrigan** have been appointed district sales managers by Bonanza Airlines at Phoenix, San Diego and Los Angeles, respectively.

K. J. ("Jack") Howe named by Chicago & Southern Air Lines to the post of district sales manager at the company's Houston office succeeding **E. J. Bissell**, resigned.



Howe



Jones

K. C. Jones has become regional affairs manager for United Air Lines in the Pacific Northwest with offices in Seattle.

Dale J. Madden, former d.s.m. for Braniff Airways at Detroit, has joined American Airlines as manager of convention and interline sales in the same city.

Richard E. Fisher, formerly American Airlines' manager of special events for public relations, has been promoted to director-state affairs.

Joseph P. Rowan has been transferred by Trans World Airlines special public relations representative to the job of assistant to the vice president-sales. He continues to handle special assignments in his new capacity.

James M. Fennell has been appointed supervisor of passenger and cargo at El Paso by American Airlines. Fennell succeeded **E. W. ("Dutch") Mueller**, who transferred to the same position at Fort Worth.

Paul Greenlee, formerly d.s.m. for Braniff Airways at Kansas City, has

been named assistant to the company's agency and interline manager, **Bill Beattie**.

Joseph C. Mulcahy is now western regional agency and interline representative for National Airlines with headquarters in New Orleans. He replaces **Callons Kennard** recently transferred to Havana.



Chiles



Mulcahy

Dwight Chiles has become city sales manager at Houston for Braniff Airways.

ADMINISTRATIVE

Nelson David has resigned as director of the Central European region of Pan American World Airways' Atlantic Division, and it is reported that he will become general manager of Alaska Airlines. The general managership is to be a newly-created post with broad authority over management and operations of the company.

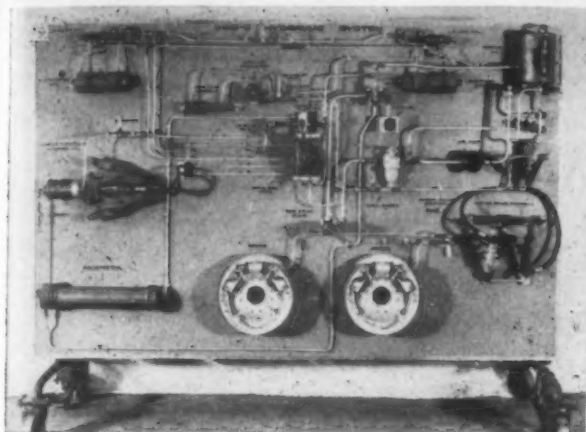
Ralph W. Starkey has been named vice president-traffic and sales for Alaska Airlines, with headquarters in Seattle. Starkey, who has been in the industry for several years, has been with Capital, Eastern, U. S. Airlines and more recently with Air Cargo, Inc.

Floyd M. Williams has retired as director of air mail services for American Airlines. Before joining American in 1944 as general superintendent-mail traffic, Williams had served 37 years in the Post Office Department. He will continue his activities in the air transport field as a consultant on air mail matters for ATA.

Edmund M. Hanrahan, member of the board of directors of Colonial Airlines, elected to the newly-created post of board chairman, and **Francis Hartley, Jr.**, has been named as an additional director.

William Zeckendorf, New York, president of Webb & Knapp, Inc., real estate developers, has been elected to the board of directors of The Flying Tiger Lines.

Salim L. Lewis, partner in the New York brokerage firm of Bear, Stearns & Co., has been elected a director of National Airlines filling the unexpired term of **William K. Jacobs, Jr.**, resigned.

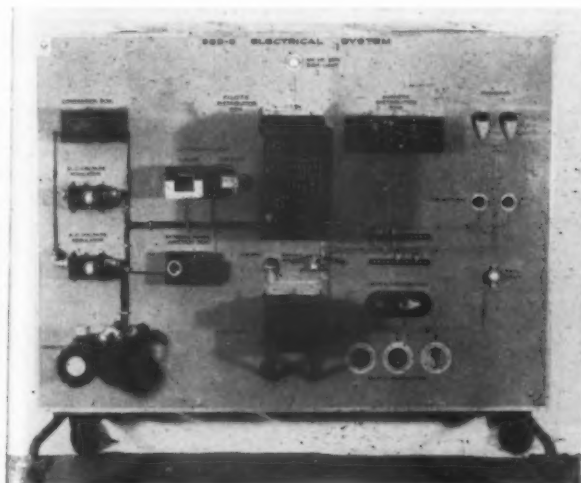


HYDRAULIC SYSTEMS are typical of the area in which tremendous growth has occurred in the modern military aircraft. Here the hydraulic systems of the World War II

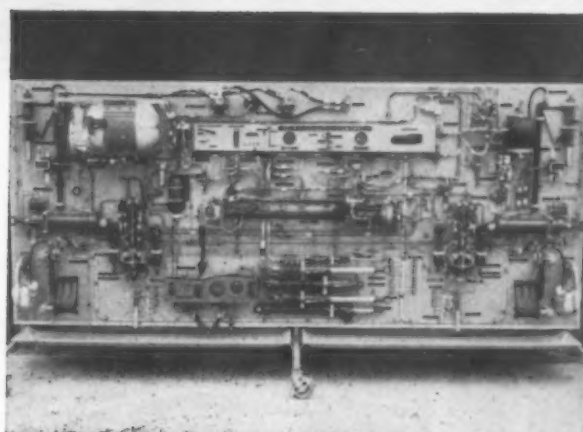
The Cost of Complexity

THE TREND toward increased weight and complexity in aircraft design continues despite pleas on the part of engineers and pilots alike that simplicity should be the goal. The trend is accelerated because of the high altitude, high speeds, high temperatures, and similar factors which turbine-powered aircraft have brought with them.

The accompanying photos and drawing, supplied by Douglas Aircraft Company, illustrate the nature of this increase in complexity and its cost in aircraft production. As shown in the drawing, if an airplane's size could be cut in half it could be produced in 2.38 times the quantity for the same average contract expenditure. If the weight were to be quartered, the quantity could be upped 5.78 times.



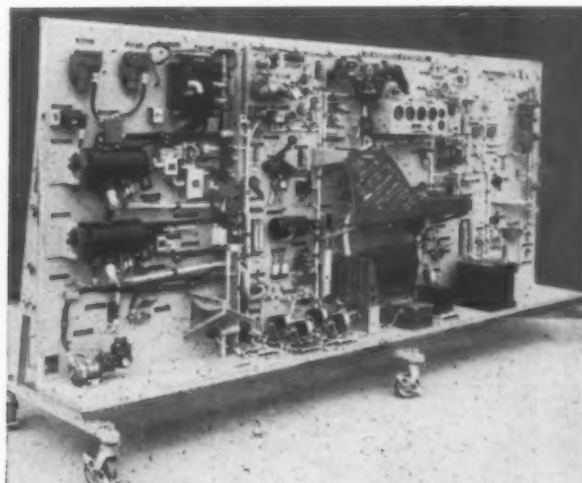
EQUALLY GUILTY of growth and increased complexity are the aircraft electrical systems. Growth of automatic systems and instrumentation have called for new power sources without eliminating earlier requirements. Higher voltage and



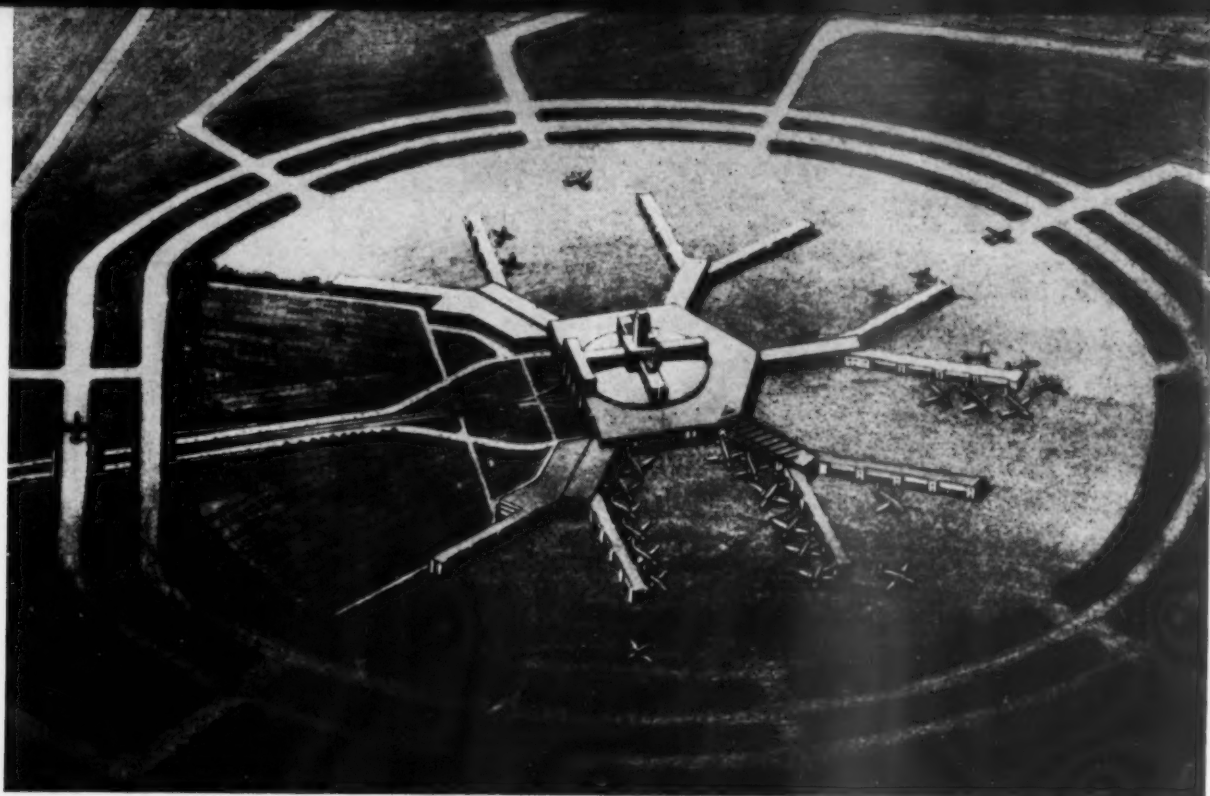
Douglas SBD-5 and current Douglas AD-4 aircraft offer mute evidence of the problem. The newer system adds a large number of actuators for auxiliary control devices.



EFFECT OF COMPLEXITY and consequent weight increases is best illustrated in this Douglas Aircraft Company drawing showing ratio of procurement, for a given dollar investment, to aircraft size and weight. While extreme reductions, such as halving or quartering aircraft weight, are remote, the effect of a 25% cut in weight is revealing.



amperage requirements have introduced the need of better regulation, more reliable protective devices, etc. Nor do these photos include electronic and communications equipment, source a fast growing demand.



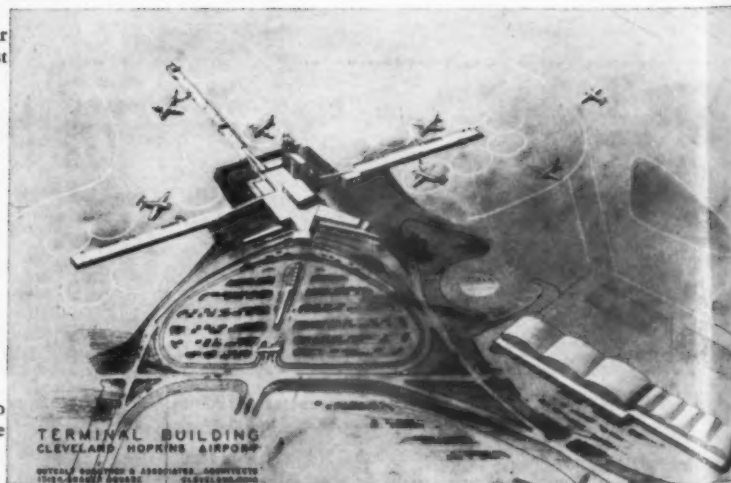
Artist's view of proposed terminal building and loading ramps at O'Hare Field in Chicago. Radial taxi strips make traffic handling easy.



The Airports Plan for Tomorrow

Newark's new passenger terminal building, now under construction by the Port of New York Authority, will cost eight million dollars.

Cleveland's Hopkins Airport will get a new hangar to go with its proposed new terminal building. For details, see story on next page.



How Cleveland Solved Its Hangar Problems

New \$3,500,000 hangar will be built at no cost to city by unique package deal with private firm.

By KEITH SAUNDERS

CLEVELAND has made a start toward solution of its airport hangar problem with completion of arrangements for construction of a \$3,500,000 hangar at Cleveland Hopkins Airport by a private firm without burden to the city's taxpayers.

The package deal, probably unique in airport circles, provides that a general contractor, in this case Thompson-Starrett Co., Inc., of New York, will:

- **Rent** from the City of Cleveland the land required for the hangar and related facilities.

25-Year Lease

- **Coordinate** the design, financing, and construction of the hangar facilities.

- **Lease** them back to Cleveland on a 25-year lease with title to revert to the city at the end of that period.

As security for its rental obligation, the city will pledge the rental revenue from sub-leases it will execute with airlines and other tenants of the hangar facilities.

Conceived by James C. Buckley, New York terminal and transportation consultant, this hangar financing plan was the subject of almost a year of intensive negotiations between Buckley, Major John Berry, Cleveland's commissioner of airports, and Claude King, now acting commissioner.

The Cleveland City Council approved an ordinance making the arrangement possible, chose Thompson-Starrett as the general contractor, and then had Mayor Thomas A. Burke execute a letter of intent.

90 Days

Under this letter, the city is required within the next 90 days to deliver executed lease agreements with scheduled airlines certificated to serve Cleveland and with other tenants approved by Thompson-Starrett. These agreements are to cover the long-term use of the hangar at total rentals adding up to at least 120% of the city's aggregate rental obligation.

The city anticipates no difficulty on this score. It has already received letters of intent from United Air Lines and Republic Steel Corporation to rent

one-third of the airline space and one-fifth of the non-airline space, respectively. Other potential lessees include American Airlines, Capital Airlines, TWA, Thompson Products, Inc., and Standard Oil of Ohio.

15 Acres

To be built on a site adjacent to the proposed new terminal building, the hangar and related apron areas will occupy almost 15 acres.

It will comprise:

- **Airline sections** having a total length of 750 feet, a depth of 150 feet, a clear height of up to 40 feet, and clear spans of up to 250 feet, thus enabling accommodation of the largest transport aircraft in use or in reasonable prospect.

- **Corporate and executive aircraft** sections with a total length of up to 625 feet, a depth of 125 feet, a clear height of 30 feet, and clear spans of approximately 125 feet.

- **Shop and storage** space at the rear of the hangar in a ground floor lean-to 30 feet wide and running the entire 1,375 foot length of the building, with provision for a second story if needed.

- **Almost nine acres** of concrete apron area on the field side of the hangar for aircraft parking and maneuvering.

Completion of the new hangar is expected to coincide with completion of the west finger of the new terminal building, thus permitting razing of the existing obsolete hangars north of the present terminal and the subsequent construction of the north wing of the new terminal.

Thompson-Starrett is required by next December to complete preliminary plans and outline specifications for the hangar and related facilities, to draft the general conditions governing their construction, and to prepare the necessary construction contracts, leases, and financing arrangements for approval by the city. Construction is scheduled to be completed in from 18 to 24 months thereafter.

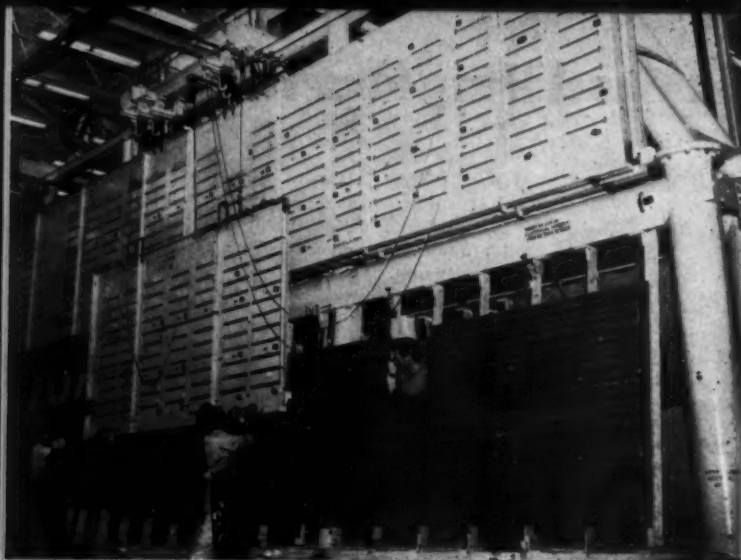
Here's how Jim Buckley sums up the hangar-financing plan:

"We have long felt that the provision of adequate hangar facilities at municipal airports has been woefully neglected. Hangar construction is usually the last item to receive the attention of municipal airport officials, both because construction is not eligible for Federal aid and also because of a reluctance to use general obligation funds to build facilities for the exclusive use of individual tenants.

"Use of the pattern worked out for Cleveland overcomes both of these difficulties by bringing private capital into the hangar construction market to provide a complete package, including design, financing and construction, without burden to the taxpayer."



First commercial jet overhaul, repair, and modification center will be the Ontario base of Lockheed Air Service, International, shown above in artist's sketch.



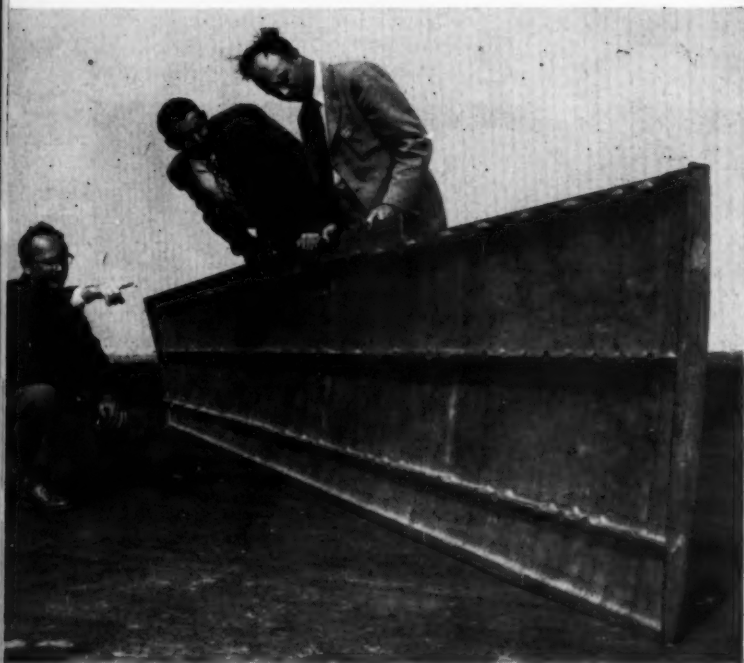
Lockheed Crew lowers a 1,000-pound drill-plate into position on the double-sided two-story drilling jig used for precision spotting of holes. Said to be the first of its kind, the machine is helping to turn out magnesium floor sections for the Navy's 1049B cargo Super Constellations. Weighing 30,000 pounds, the big jig turns out eight different floor panels in record time, saving thousands of production man-hours. A crew of 15 men can work simultaneously on each side of the jig.

Production Illustrated



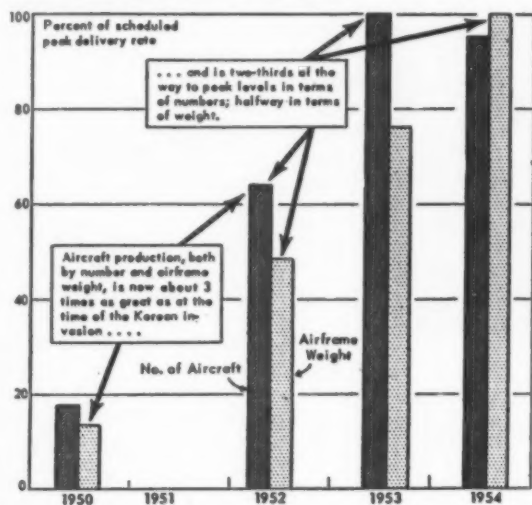
Featherweight Magnesium

cast as 16-foot airplane wing section, believed to be the largest cast aircraft surface, was produced as part of the research program sponsored by USAF to produce magnesium airplane wings. The program is being carried out by Northrop Aircraft, Inc., in cooperation with and with the assistance of The Aluminum Company of America. Examining the top side of the casting are E. C. Denzin, Northrop special projects engineer, W. A. Steyer, wing casting project engineer, and L. I. Unmack, liaison engineer. At left, Steyer, Denzin and Unmack look over the underneath side of the section.

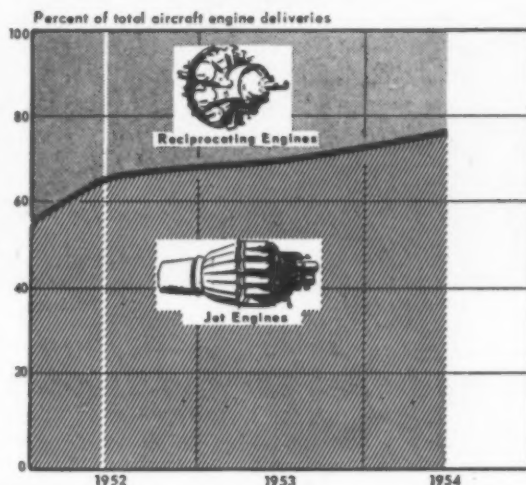


Production Spotlight

Production progress in aircraft



Jet engines make up a growing share of the aircraft engine program



Military Aircraft Deliveries Tripled

Military aircraft deliveries, now over 800 a month, are at a rate more than triple that of two years ago, figured either in number of planes or in airframe weight, the Sixth Quarterly Report of the Office of Defense Mobilization reveals.

Measured in terms of airframe weight, current output is about half of the scheduled peak, which will not be attained until the second quarter of 1954. But measured in numbers, production is closer to the peak rate, because the proportion of lighter plane types to bombers and transports is currently higher than it will be later.

Other points of interest in the ODM report, labeled, "The Shield Against Aggression," include:

- **Electronics output** is now seven times the low rate prevailing when the Korean war started. In June, 1950, only 5% of the major military electronics items now in the program were in production.

- **Machine tool production** has progressed to a point where shipments are exceeding net orders. Current rate of machine tool production is nearly \$100 million a month, double that of a year ago. Backlog of tool orders averages 14 months, but certain critical tools still have backlogs of 20-40 months.

- **USAF's heavy press program** is

progressing. Contracts have been let for 17 of the 20 presses Congress authorized, and almost all are to be completed by 1954 or sooner. Certain forgings and castings for these presses are to be produced by foundries in England, France, Italy, Japan, and Germany.

- **Primary aluminum production** capacity rose by 100,000 tons within the past six months. By the end of 1954, the aluminum expansion program will provide a capacity of 1.5 million tons a year.

- **Stockpiling** by the U. S. is improving. In the second quarter \$345 million was spent for scarce materials, as against \$162 million during the first quarter and the \$94-million low point in the last three months of 1951. This country, however, would find its materials situation "spotty" in case of a full-scale war.

Enough Money in New Bill For 143 Wings

The \$46,610,938,912 money bill for the Defense Department contains \$21,118,361,770 for the USAF—enough to insure achievement of a 143-wing Air Force by the middle of 1955. That is the stretched-out schedule which was threatened by House-voted cuts in

USAF funds and a \$46-billion spending limitation. Defense leaders had stated these actions would delay the 143-wing force for two years beyond mid-1955.

Senators voted to eliminate the spending limit and restore the AF funds. The Navy and Army suffered substantial cuts for personnel operations and procurement, but the Navy did end up with enough funds to start construction on a second 60,000-ton carrier.

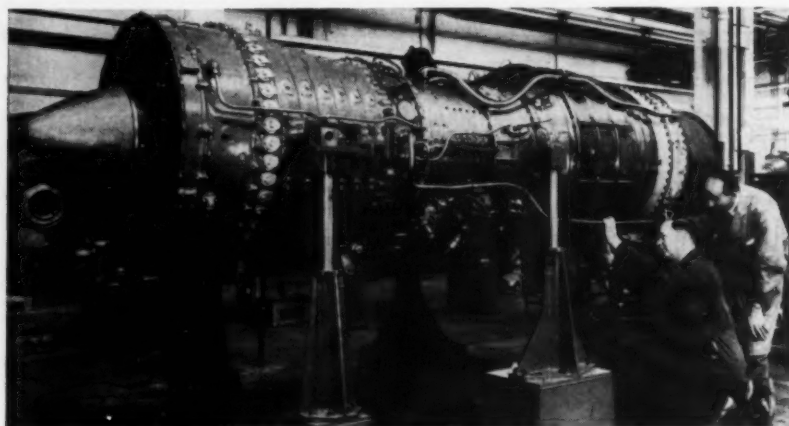
In all, the military services received \$4,779,770,858 less than the President had asked in his budget message. Army gets \$12.2 billion, Navy \$12.8 billion, and the Defense Department \$409.8 million.

CAA Loses Hope for Jet Prototype Funds

Civil Aeronautics Administration's hopes for funds to start a prototype testing program on three types of jet planes evaporated when House-Senate conferees agreed to delete the \$1,383,074 voted for this purpose by the Senate.

The CAA had requested \$1.4 million for tests on two North American B-45's, two Douglas F3D's, and the Canadian Avro Jetliner. The House ignored the request but the Senate approved almost all of it. The final CAA appropriations bill, however, signed by President Truman, included no funds for jet prototype testing.

International Report



THE WRAPS COME OFF the Bristol Olympus jet engine.

Olympus Jet Engine Details Revealed

Release of information on the 9,750-pound thrust Bristol Olympus military turbojet spotlights the first gas turbine to come up to US transport manufacturer's thrust requirements. The production version of the British engine will undoubtedly easily top the 10,000-pound thrust mark whereas the version built under license by Curtiss-Wright Corp's Wright Aeronautical Division will nearly double the power of the original model.

The Olympus fuel consumption of 0.776 lb./lb. thrust/hr. This combination of high power and economical consumption results from the use of a high compression ratio. Bristol Aeroplane Co. claims that the Olympus has all the advantages of medium-compression-ratio engines in handling and easy starting,

without the associated high fuel consumption.

The engine's design obtains a high compression ratio from axial compressors by using two compressors in series. The Olympus basically comprises a low-pressure unit and a high-pressure unit, each with an entirely independent axial compressor and turbine. The low-pressure unit acts as a supercharger to the high-pressure compressor, and each is driven through concentric shafts by its own turbine.

Bristol has two Olympus prototypes in the test-bed stage and soon will install one in an English Electric Canberra flying test-bed. The engine weighs 3,520 pounds and has a diameter of 40 inches. Length (intake flange to exhaust flange) is 124 inches.

TURBOJET ENGINES

	Shaft horse- power	Plus lbs. thrust
*Armstrong Siddeley—Mamba	1,320	405
Rolls Royce—Dart	1,400	295
*Armstrong Siddeley—Double Mamba	2,640	810
*Armstrong Siddeley—Python	3,650	1,150
Bristol—Proteus 3	3,320	1,200
	(has run at 4,100 plus 920)	

(The Proteus also exists in coupled form giving twice the power)

COMPOSITE ENGINES

	Shaft horse- power	Plus lbs. thrust
Napier—Nomad	3,000	320

ROCKET MOTORS

(Development work only)

	Thrust (pounds)
Armstrong Siddeley—Snarler ..	2,000
de Havilland—Sprite	5,000
RAE (Farnborough)/Fairey—re-Beta	restricted

Details Revealed on French Jet Transport

Green light from the French Civil Aviation Department could get SNCA du Sud-Est's novel SE 210H swept-wing jet transport into the air by 1954 (AMERICAN AVIATION, May 26). Powered by three 6,100 pound static-thrust Atar 101D turbojets located aft of the passenger compartment, the SE 210 could cruise at 480 to 500 mph, and could carry 48 first-class or 60 coach passengers for stage lengths of up to 1,200 miles.

The design calls for a span of 106 feet, 3½ inches, and a length of 104 feet, 7¾ inches. The three-jet configuration reportedly worries some conventionalists in the French Civil Aviation Department and a two- or four-engine lay-out may be required if a prototype is ordered.

In competition with the SE 210 is SNCA du Sud-Ovest's SO 60, a more conventional twin-jet design.

Twenty Jet Engines in British Plants

British manufacturers have over 20 different types of jet engines in production or pilot production, according to the Society of British Aircraft Constructors.

Three are rated as defense "super-priority" projects: the Rolls Royce Avon, the Armstrong Siddeley Sapphire, and the Armstrong Siddeley Double Mamba. Seven types are at present being built outside the United Kingdom under license: the Rolls Royce Derwent, Avon, Nene, and Tay; the de Havilland Ghost and Goblin; and the Armstrong Siddeley Sapphire. America holds licenses for seven British engine designs.

The following list shows all British jet engines in production or pilot pro-

duction. An asterisk indicates that an overseas country has purchased the design license:

TURBOJET ENGINES

	Thrust (pounds)
Armstrong Siddeley—Adder ...	1,050
Armstrong Siddeley—Viper	1,500
*de Havilland—Goblin 3	3,350
*Rolls Royce—Derwent 5	3,500
*de Havilland—Ghost 103	4,850
*Rolls Royce—Nene 3	5,000
*Rolls Royce—Tay 1	6,250
*Rolls Royce—Avon 1	6,500
*Armstrong Siddeley—Sapphire	8,300
*Bristol—Olympus	9,750

¹ In production only in US, as J-48.

² Thrust of more powerful Avon restricted.

Russian Offer Seen as 'Pure Propaganda'

A slight ruffle in the stagnant air transport relations between this country and Russia was caused last week by a Soviet Tass News Agency broadcast in which an appeal was made for "Russo-American cooperation in the field of aviation."

U. S. Federal officials termed it "pure propaganda" and were highly skeptical of the report, which was based on an article in the current issue of Moscow's English-language magazine "News" by General Mikhail Gromov, hero of a non-stop Moscow-U. S. flight in the late '30's.

Tass, whose report was picked up by the French News Agency in Paris, quoted Gromov as suggesting the possibility of opening regular air traffic between the U. S. and Russia and of eventual joint explorations of Arctic regions by Russians and Americans.

In Washington, one official said, "If the Soviet Government sincerely wishes to open regular commercial airlines between the two countries, they can do it officially by sending a request to the State Department for negotiating a bilateral agreement to that effect." But there was little optimism over such a possibility in the absence of any "factual evidence" of Russia's willingness to cooperate in any field.

Pan American World Airways is authorized by CAB to fly to Russia, but there have never been any bilateral air transport negotiations and the award is meaningless.

Air Travel Credit Card Use Up 38,000 in Year

There are 476,921 Universal Air Travel Plan Credit cards currently in use, according to the Air Transport Association. The figure represents a gain of more than 38,000 over a year ago.

More than 72%, or 345,944, of the cards are good for travel on the North American continent and contiguous islands; 130,877 are valid for worldwide travel.

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Forms close 20 days preceding publication date. Address all correspondence to Classified Advertising Department, AMERICAN AVIATION PUBLICATIONS, 1025 Vermont Ave., N. W., Washington 5, D. C.

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Gastronomics. Some people around this world eat the damndest things.

Let me tell you about a dish that just about threw me for a loop in France.

It was on the third night out of Paris and I had had so much good food up to that time that what started out to be a vacation tour was rapidly becoming a search for good restaurants.

You see this eating business is taken very seriously in France. There are actually whole guidebooks devoted to nothing but listing places serving particularly fine dishes and wines. I didn't buy one of those books, but I did get a copy (in English) of the finest, most useful guide of its kind I've ever seen.

It's the *Guide Michelin*, an 880-page book, revised annually, which does an astonishingly good job of listing and rating every hotel and eating place in France. You can't travel without it. Best of all, it is meticulously honest. If a hotel or restaurant has one star, it must be pretty good. If it has two stars, you know that it's unusually good. There are only about seven restaurants in all of France, I believe, that rate three stars. The rating is strictly on the quality of the food. Any chef who slips will find himself skidding downward in the next edition.

Villeneuve-de-Marsan. We have our Duncan Hines in the U. S. but Duncan seems to be influenced a lot by calico curtains and fireplaces and antiques rather than by the actual quality of food. *Guide Michelin* will give a place with a sawdust floor a high rating if the food is good.

So naturally I began looking for places with stars and up to a certain point I had done very well. On the evening of the third day my wife and I found ourselves in southern France, but a long way from any place in particular. No sizeable towns near. I looked over the map, checked with *Guide Michelin*, and discovered a place about two hours' drive away that rated two stars. So off we went. The closer we got the more excited I became about getting another fine meal.

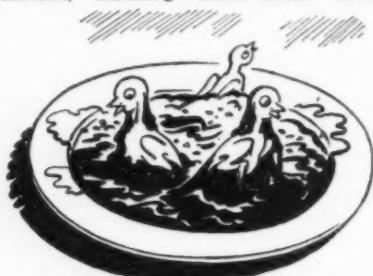
The target was the Hotel des Voyageurs owned by a bird with the name of Jean Darroze in a small town named Villeneuve-de-Marsan. France has enough towns called Villeneuve to sink a battleship, but this one is 'way down in the southwestern part, not far from the main road to Biarritz. The hotel has only 30 rooms but we took a chance of getting one and arrived just at dusk.

Les Petites Oiseaux. My wife exercised her French and got us a room, which I'll tell you about later, and after we had cleaned up we went to the dining room. Hotel des Voyageurs

is a sort of family hotel, and you could tell from the patronage that it was highly regarded for food. We were the only tourists. No English was spoken by anyone.

There was no menu. You just took what came, but there was a wine card and we ordered some of the local stuff. First came soup, which was good, as only a thick French soup can be. Then came fish. I don't like fish, and would have been happy to skip a course, but in France they won't let you skip a course, so I had a huge omelette.

Then came the *pièce de résistance*. The waitress put on our table a big platter well filled with something. I couldn't figure out what the stuff was, at first, until she began dishing it out onto my wife's plate. In answer to my wife's inquiry about what we were getting, the waitress replied "les petites oiseaux," meaning "small birds." Then



it was all too clear. These were *ortolans*, a bird known as a "bunting" in Europe. When grown it is reddish green with blackish spots, above, and a greenish gray head.

Robbing the Nests. But these weren't full-grown birds at all. They were taken at the hatching stage, before any feathers were grown, and you were supposed to eat the whole blooming works, head and all. What startled me was to see those tiny little heads drooping over the spoon as the waitress dished them out. There were about 18 of them, served in gravy.

My wife and I did some hasty reconnoitering of the international scene and I announced in no uncertain terms that taking baby birds from the eggs and eating heads, bones, and all, wasn't quite in my line of work. My wife pointed out that the bones hadn't formed yet so they wouldn't stick in my insides. I said bones were bones, formed or not, and besides I didn't like the way those tiny baby birds leered at me out of the gravy. Meantime the poor waitress, a young country gal not accustomed to running into crazy American tourists, was baffled by our talk.

I finally agreed to eat the meat of two birds, if there was any meat at all. I consequently got two of the cute little

things, and I actually ate what meat there was—about a small spoonful per bird. My wife did the same. The rest of the squadron of frustrated songsters went back to the kitchen.

Thrush on Toast. Partridge and other such birds are fine eating, but for heaven's sake who ever heard of robbing a nest of little tiny birds no bigger than sparrows? I've even had pigeon in the war days in England, but pigeons are pretty big birds. These *ortolans* are so small that one made a good-sized mouthful. Brother, you can have 'em. They are supposed to be great delicacies. Later on I found a place that served thrush on toast and I passed that up fast.



It's a sad fact, but true, that there are no songbirds to amount to anything in France. You miss them driving through the isolated countryside. Stop your car and it's deathly quiet. No songs in the air. I shudder to think that the French have robbed all the nests that way, but I guess it's true. A bird has no future in France except to land on the stove before it ever gets a chance to test hop an inaugural flight.

But there are many fine dishes in France. Take the Riviera Hotel at Aix-en-Provence. My wife and I had a long lingering lunch there one sunny day, sitting out on the terrace, enjoying delicious Provence wine. My main entree was chicken cooked in various liqueurs, one of the finest meals I've ever had.



When it comes to steaks, you've got to be careful, unless you like raw meat. The French believe that singeing a steak is enough. The first night on the road, in the grill room of the Metropole Hotel at Tours, I had a *Tournedos flambés Medicis* which turned out to be a steak grilled in liqueur at the table with a lot of fancy flames. But the meat was scarcely singed. After that I emphasized whenever I got a steak I wanted it *très bien cuit*—very well cooked—and repeated it. The French don't believe in cooking meat well, and it's okay with me so long as they leave my stuff on the stove for just a couple of minutes at least.

Around the World

BOAC Reports on Comet Operation

AFTER completion of almost 3,000 flying hours with de Havilland Comets, BOAC pilots report favorably on jetliner operations. The most vital requirements is for homing and distance-measuring equipment at all main airports: scope for improvement lies not within the plane but outside—with meteorological services and ground and traffic procedure.

Comet cruising is reportedly less affected by head winds and high temperatures than was first thought. A 50-mph head wind reduces range by about 170 miles (only about 20 minutes flying time) and an increase of 15° Centigrade only reduces it by about 30 miles. Icing problems do not arise at Comet cruising altitude, although they may occur in climb or descent, or if it is necessary to cruise at lower heights due to failure of an engine.

If an engine cuts on take-off the effect is much less severe than with piston-engine types.

Viscount Production Doubled

Production of the Vickers Viscount turboprop transport is being reorganized and output will be doubled. The first of the four-engined planes will be delivered to British European Airways on October 1 and will go into scheduled service in March, 1953.

Cuba Plans Helicopter Mail

Under a scheme to carry all first and second-class domestic mail by air without surcharge, Cuba will soon inaugurate a helicopter mail service linking provincial capitals with outlying towns and villages.

More Powerful Comets for CPA

Ghost engines with water injection will be installed in the de Havilland Comet IA's ordered by Canadian Pacific Airlines for its jetplane service to Australia. Water injection enables gross weight to be boosted from 110,000 to 115,000 pounds.

CPA will introduce the Comets on the trans-Pacific run in 1953 and will fly them from Honolulu to Sydney with connections from Vancouver to Sydney provided by Douglas DC-6B's. When the airline's Comet II's are delivered in September, 1954, the longer-ranged aircraft will be able to make the entire trans-Pacific run.

TRANSPORT

Lineas Aereas Costarricenses S. A. (LACSA), a PAA affiliate, has bought out TACA de Costa Rica and will operate to all points heretofore served by the two carriers, but will eliminate duplication. TACA de Costa Rica will be dissolved and its four Douglas DC-3's will be taken off by LACSA, which becomes Costa Rica's sole scheduled operator. The combined aircraft fleet will be overhauled by Servicios Aerotecnicos Latin-Americanos (SALA).

Viacao Aerea Sao Paulo (VASP) has ordered an additional six SAAB Scandia twin-engined transports from Svenska Aeroplan AB, which has already supplied the Brazilian carrier with six of the planes. The re-order will be handled by two Dutch aircraft companies, Fokker and Avirolanda, who recently contracted with SAAB to build the Scandia under license.

Thai Airways has been authorized by the government of Thailand to budget \$750,000 to buy a second Douglas DC-4 with which to expand its international operations.

El Al Israel Airlines is seeking dollars to order additional four-engine equipment—new Lockheed L-1049 Super Constellations or second-hand L-749's—to supplement its three converted C-69's.

KLM Royal Dutch Airlines has ordered a second Douglas DC-6A Liftmaster for its all-cargo operations. Both planes will be delivered in 1953.

MANUFACTURING

SNCA du Sud-Ouest in its report for 1951—it made a profit of \$21,500 in the year—states that the French government has ordered two prototypes of the SO 4050 Vautour twin-engine fighter-bomber (slated to fly in the fall) and two prototypes of the SO 9000 supersonic interceptor fighter (flight tests scheduled for early 1953). SNCASO is also building the prototype of a convertiplane which may be the predecessor of a transport convertiplane for 300-mile stages.

France's aircraft program may be threatened by lack of off-shore funds. Unless appropriations come through very quickly—they should have been through by July 1—the production schedules for the Dassault MD 452 Mystere jet fighter, the license-built de Havilland Sea Venom naval jet fighter, and the Nord 2501 cargo transport will be affected. Georges Hereil, president of the French Aircraft Industries Association has warned that France must get a "fair share" of off-shore funds or else reconsider its policy of cooperation within the European Defense Community.

Australia's aircraft program may be affected by the new "super-priority" for food production policy discussed between the Australian and UK governments. There may have to be a curtailment in present plans for the aircraft industry. Some premature reports have suggested that Australia will import instead of manufacture combat aircraft and that the industry will merely produce trainers and jet engines.

Prototype of the Iberavia I-115 trainer built in Spain by Aeronautica Industrial has made its first flight. A pre-production series of I-115's should be completed by the end of the year.

News At Deadline

Russia Building Bombers Faster than U.S.

Russia is out-producing the United States in strategic bombers, as well as in jet fighters, Acting USAF Chief of Staff Nathan F. Twining believes. The quality of Russian aircraft is also improving at a rate that will put it at least on a par with ours by 1954.

Twining's opinions were revealed in his testimony before the Senate Appropriations Committee. He also noted that he believed that Red bombers are not capable of making a round trip to the U.S., estimating the radius of the TU-4 at about 2,000 miles. The MiG-15 he described as the best Russian fighter in production.

Non-Carrier Aviation Seen Slumping Fast

Civil aviation in its non-air-carrier aspects is going downhill toward disaster at a dizzy pace, according to the final report of C. K. Faught, Jr., who resigned this week as director of the General Aviation Division of the Defense Air Transportation Administration. According to the report:

- Some 10,400 employees of fixed base operators left the field in the last two years. Since only about 30,000 are left, implications are clear as to what continuing losses at this rate would mean.

- Number of aircraft used by such operators fell from 25,000 to 16,061 in the last year alone.

- More than half the certificated flying schools have dropped out of the picture in the past five years.

Of those employees lost to the fixed base operators, 1,972 went into military service, 1,766 went to airlines, and 3,746 went to other parts of the aviation industry.

Robinson Re-named

New name of Robinson Airlines will be Mohawk Airlines, Inc., as soon as necessary legal procedures can be carried out, it has been announced. Line is a New York-New Jersey local service carrier.

Arbitration Due at NAA

Production slow-down of the F-86 was postponed, at least, as UAW-CIO and North American Aviation negotiators agreed to submit a blanket wage

raise to a Presidential arbitration panel. Panel's recommendations will be binding on both, and any pay boost will be retroactive to April 28.

Pan Am May Buy British

Pan American will buy British aircraft "if business dictates," PAA's President Juan T. Trippe is reported to have announced upon his arrival in London to look over plans for the Comet III and IV.

United's CV 340's Late

Delays in the delivery of Convair 340's to United Air Lines have postponed the start of UAL service with the new equipment from the original summer date to sometime in September.

Assorted troubles, including the re-setting of the carburetor on the P&W R-2800-CB16 engines, have been cited as causes for the delays.

Atlantic 'Copter Hop

First attempted trans-Atlantic flight in helicopters was scheduled for two Sikorsky H-19's equipped with long-range fuel tanks. The two aircraft were to have flown to Wiesbaden, Germany, in about 40 hours, for incorporation in the MATS Air Rescue Service.

International Subsidy Separation Report Out

Ton-mile service rates for carrying mail on international routes will vary from 45c to \$2.50 in the 7 geographical groupings used to class U.S. scheduled international carriers in CAB's newly released report on administrative separation of service pay from subsidy.

The report reveals that 70% of the current international mail pay is considered subsidy, as contrasted with 43% of the domestic mail pay. Despite this, Post Office income from carriage of mail exceeds the combined international and domestic mail payments prior to allocation of general PO expenses, such as ground transportation.

The subsidy separation report, which is based on the same separation techniques used in determining domestic mail pay service rates, is not expected to affect actual mail pay. The major effect will be that all international mail rate cases processed after July 1, 1952, will identify that portion of the mail payment which is for actual service and

that which is considered subsidy. Rates established are for the years 1951, 1952, and 1953.

ALPA Staff Resigns; Rival Union Possible

A Federal Court decision by Judge Walter J. LaBuy in Chicago that David L. Behncke is the "legal president" of the AFL-Air Line Pilots Association has prompted the union's membership to consider secession, and the establishment of a rival union which probably would not be in the AFL.

The court ruling forestalled use of a recall ballot, by which the membership had hoped to re-oust Behncke, and ordered ALPA to pay all of the court costs incurred by Behncke during his suit (about \$150,000). Meanwhile, ALPA's paid staff, except for clerical help, resigned in protest over Behncke's reinstatement. Air lines may be the innocent victims if pilots refuse to fly without union representation.

CAB Approves Purchase Of Empire by West Coast

Agreement under which West Coast Airlines would purchase all outstanding stock of Empire Air Lines and operate the two systems as a single company has been approved by the Civil Aeronautics Board. Decision was made simultaneous with extension of Empire's local service certificate through September 30, 1954, and the granting of new connecting links between the systems.

Final Rate Set For WAL

Final mail rate of 53c per ton-mile has been established by the Civil Aeronautics Board for Western Air Lines' entire system, effective from April 10, 1952. Under CAB's administrative subsidy separation for domestic carriers, the 53c rate is considered a non-subsidy rate for so-called Group II carriers.

For an "open" period between October 1, 1951, and April 9, 1952, CAB deferred establishment of a final rate because Western objects to CAB's proposal to consider Western and Inland as a "single rate-making unit."

Under the new non-subsidy rate, CAB expects Western's annual mail pay to be about \$679,000 less than under previously effective rates.

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Routine in 1952



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